



Implementation Guide for Transmission of
Laboratory-Based Reporting of Public Health Information using
Version 2.3.1 of the Health Level Seven (HL7)
Standard Protocol

Implementation Guide Update
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Centers for Disease Control and Prevention



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1 Introduction

1.1 Background

Monitoring the occurrence of diseases is a cornerstone of public health decision-making. This monitoring, referred to as public health surveillance, can be used to trigger case or outbreak investigations, follow trends, evaluate the effect of prevention measures such as immunizations, and suggest public health priorities. Because disease trends have the potential to shift rapidly, especially with infectious diseases, surveillance needs to be ongoing, timely, and complete.

Each state and territory has requirements for laboratories to report certain findings to health officials. In the past, these reports were written by hand on forms provided by health departments and mailed to appropriate offices. With computerization of laboratories, it has become possible for laboratories to send reportable data to health departments electronically.

This guide contains the specifications for sending laboratory-reportable findings to appropriate state, territorial, and federal health agencies using Health Level Seven (HL7) messages. The message is not specific to any pathogen or reportable condition and is applicable for most laboratory-reportable findings in the National Public Health Surveillance System (NPHSS) as defined by the Council of State and Territorial Epidemiologists (CSTE).

This document is a guide for electronic communication of reportable diseases, consistent with recommended reporting of reportable conditions from laboratories to public health agencies using HL7 Version 2.3.1. The implementation guide follows the specifications described in the HL7 Standard Version 2.3.1 and focuses on one type of HL7 message, the Observational Report - Unsolicited (ORU). HL7 describes the order and structure of data fields for sharing test results, but does not stipulate which coding system or dictionary of descriptive terms should be used to identify specific tests and findings unambiguously; this is determined by agreement of the parties sharing the information. For sharing laboratory-based reports of public health findings, these coding systems are recommended: 1) Logical Observation Identifier Names and Codes (LOINC[®]) for specific laboratory procedure names, 2) the Systematized Nomenclature for Human and Veterinary Medicine (SNOMED[®]) for descriptions of findings, notably organism names, and 3) International Classification of Diseases, Clinical Modification (ICD-9-CM) coding system to code signs, symptoms, injuries, diseases, and conditions. The guide gives a description of the utility and requirement of each data field in the ORU message, provides examples of complete messages, and includes tables of recommended codes.

1.2 HIPAA

The Health Insurance Portability and Accountability Act (HIPAA, or the Act), P.L. 104-191, was enacted on August 21, 1996. The Act included provisions relating to insurance coverage, but it also included a section that is relevant to electronic reporting of health care information. Among the requirements in this section called administrative simplification were: the adoption of standards for electronic health information transactions for certain uniform financial and administrative transactions and data elements, including claims, enrollment, eligibility, payment, coordination of benefits, and for the security of electronic health information systems. HIPAA also addressed safeguards of information, electronic signatures, standards for various unique health identifiers, and specific code sets to be used in the transactions. HIPAA also included provisions for adopting standards for the privacy of health information. The Law pre-empts State laws and imposes civil money penalties and prison for certain violations and made some changes in the membership and duties of the National Committee on Vital and Health Statistics (NCVHS). There is also a provision that NCVHS will make recommendations and legislative proposals to the Secretary on the adoption of uniform data standards for patient medical record information and the electronic exchange of such information. It also addresses state regulatory reporting by stating, "[N]othing in this part shall limit the ability of a State to require a health plan to report, or to provide access to, information for management audits, financial audits, program monitoring and evaluation, facility licensure or certification, or individual licensure or certification." Regulations issued under the Act provide the implementation detail.

On the issue of public health, HIPAA states, "Nothing in this part shall be construed to invalidate or limit the authority, power, or procedures established under any law providing for the reporting of disease or injury, child abuse, birth, or death, public health surveillance, or public health investigation or intervention." The covered entities (those who have to comply) named in the HIPAA legislation are "health plans, health care clearinghouses, and health care providers who transmit any health information in electronic form in connection with a transaction referred to in Section 1173(a) of the Act." The transactions listed in Section 1173(a) specifically deal with eligibility, enrollment, claims, and others related to payment of insurance claims. Many of the public health reports will occur between parties that are not covered entities under the Act and do not involve the covered transactions, because public health agencies generally do not file insurance claims. The regulation implementing the HIPAA privacy provisions allowed public health exemptions for disclosure without patient consent of individually identifiable health information for the purposes quoted above.

Public health reporting is not a part of the claims process and conceptually is most closely aligned with the patient medical record, with Health Level Seven (HL7) as a recognized standards development organization in that subject area. We do not believe the HIPAA requirements related to electronic transactions will in any way affect our planned use of HL7 for electronic laboratory reporting. The HL7 message as defined in this document was carefully developed to provide a method for evidence of reportable conditions to be transmitted electronically. We believe that laboratories can report this public health information using the HL7 standard as described here and that these reports will not be altered by HIPAA provisions.

1.3 Scope

The specifications in this guide are not intended as a tutorial for either HL7 or interfacing in general. The reader is expected to have a basic understanding of interface concepts, HL7, and electronic laboratory-based reporting of public health information. This guide describes a data exchange protocol applicable for reporting most diseases of public health importance.

This implementation guide is based on and consistent with the HL7 Standard, Version 2.3.1. Any user-defined variations from the standard are clearly described. Reporting requirements for reportable diseases may vary by state. Electronic copies of this document are available.

1.4 Contacts

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2 HL7 Concepts

This project remains true to the HL7 2.3.1 Final Standard, dated May, 1999. The entries below are derived from that standard for use with Electronic Laboratory Reporting.

2.1 HL7 Definitions

Message: A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event.

Segment: A segment is a logical grouping of data fields. Segments within a defined message may be required or optional, may occur only once, or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique 3-character code.

Field: A field is a string of characters. Each field is identified by the segment it is in and the position within the segment; e.g., PID-5 is the fifth field of the PID segment. Optional data fields need not be valued. Whether a field is required, optional, or conditional in a segment is specified in the segment attribute tables. The designations are: R=Required, O=Optional, C=Conditional on the trigger event or on some other field(s). The field definition should define any conditionality for the field: X=Not used with this trigger event, B=Left in for backward compatibility with previous versions of HL7. A maximum length of the field is stated as normative information. Exceeding the listed length should not be considered an error.

Component: A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are required to be valued. Examples in this guide demonstrate both fully valued and partially valued coded and composite fields.

Item number: Each field is assigned a unique item number. Fields that are used in more than one segment will retain their unique item number across segments.

Null and empty fields: The null value is transmitted as two double quote marks (""). A null-valued field differs from an empty field. An empty field should not overwrite previously entered data in the field. The null value means that any previous value in this field should be overwritten.

Data type: A data type restricts the contents and format of the data field. Data types are given a 2- or 3-letter code. Some data types are coded or composite types with several components. The applicable data type is listed and defined in each field definition. Appendix D provides a complete listing of data types used in this document and their definitions.

Delimiters: The delimiter values are given in MSH-2 and used throughout the message. Applications must use agreed upon delimiters to parse the message. The recommended delimiters for laboratory messages are <CR> = Segment Terminator; | = Field Separator; ^ = Component Separator; & = Sub-Component Separator; ~ = Repetition Separator; and \ = Escape Character.

Message syntax: Each message is defined in special notation that lists the segment 3-letter identifiers in the order they will appear in the message. Braces, {}, indicate that one or more of the enclosed group of segments may repeat, and brackets, [], indicate that the enclosed group of segments is optional.

Trigger events: The HL7 Standard is written from the assumption that an event in the real world of healthcare creates the need for data to flow among systems. The real-world event is called the trigger event. For example, the trigger event a patient is admitted may cause the need for data about that patient to be sent to a number of other systems. The trigger event, an observation (e.g., a CBC result) for a patient is available, may cause the need for that observation to be sent to a number of other systems. When the transfer of information is initiated by the application system that deals with the triggering event, the transaction is termed an unsolicited update.

Z segments: All message types, trigger event codes, and segment ID codes beginning with Z are reserved for locally defined messages. No such codes will be defined within the HL7 Standard.

2.2 Basic Message Construction Rules

Encoding Rules for Sending

- Encode each segment in the order specified in the abstract message format.
- Place the Segment ID first in the segment.
- Precede each data field with the field separator.
- Encode the data fields in the order and data type specified in the segment definition table.
- End each segment with the segment terminator.
- Components, subcomponents, or repetitions that are not valued at the end of a field need not be represented by component separators. The data fields below, for example, are equivalent:

^XXX&YYY&&^ is equal to ^XXX&YYY^
|ABC^DEF^^| is equal to |ABC^DEF|

Encoding Rules for Receiving

- If a data segment that is expected is not included, treat it as if all data fields within were not present.
- If a data segment is included that is not expected, ignore it; this is not an error.
- If data fields are found at the end of a data segment that are not expected, ignore them; this is not an error.

2.3 Unsolicited Observation Message (ORU)/ Event R01

Laboratory information is reported through the ORU^R01 message to public health agencies. The supported segments in ORU message structure is described below.

ORU - unsolicited transmission of an observation message (event R01)

| ORU^R01 | Observational Results (Unsolicited) | Chapter |
|----------------|--|----------------|
| MSH | Message Header segment | 2 |
| PID | Patient Identification segment | 3 |
| NK1 | Next-Of-Kin segment | |
| ORC | Order common segment | 4 |
| { | | |
| OBR | Observations Report ID segment | 7 |
| [OBX] | Observation/Result segment | 7 |
| { [NTE] } | Notes and comments segment | 2 |
| } | | |

Using the basic “building blocks” of MSH, PID, OBR and OBX segments (in bold type in table above), a clinical report can be constructed as a three-level hierarchy with the patient information (PID) segment at the upper level, an order record (OBR) at the next level, and one or more observation records (OBX) at the bottom. The Message Header (MSH) segment is required for all HL7 messages. Next of kin (NK1) segments can provide information about parties associated with the patient. The common order (ORC) segment transmits fields common to all types of requested services, and the notes and comments (NTE) segment is a note common format, but only supported at the Result level.

While certain elements of the message are required for laboratory-based reporting, data in non-required fields will not be rejected. The standard ORU message allows for the optional use of PD1, PV1, PV2, CTI, and DSC segments, but these segments are not defined or used in the laboratory-based reporting message. For this reason, there is no discussion of these segments in this implementation guide. Messages containing these segments, however, will not be rejected. For electronic laboratory purposes, we do not anticipate the use of acknowledgment messages; therefore, we have not defined these in this guide.

Example: Laboratory Report of Bordetella Pertussis

```
MSH|^~\&||MediLabCo-Seattle^45D0470381^CLIA|NEDSS^1644^WA-DOH|WA-DOH|200102171830|
|ORU^R01|200102170042|P|2.3.1|<CR>
PID|||10543^Columbia Valley Memorial Hospital&01D0355944&CLIA|95101100001^MediLabCo-
Seattle&45D0470381^CLIA||Doe^John^Q^Jr^L|Clemmons^M|19841004|M||W|2166 WellsDr^AptB
^Seattle^WA^98109^USA^M^King^A||^PRN^PH^206^6793240|||S^single^HL70002|||423523049|
DOEJ34556057^WA^19970801||N|||||<CR>
NK1|1|Doe^Jane^Lee^L|MTH^mother^HL70063|2166 Wells Dr^Apt
B^Seattle^WA^98109^USA^M^King^A|(206) 679-3240^PRN^PH^206^6793240|<CR>
ORC|CN|||||MediLabCo - Northwest Pathology Ltd., Central Campus^45D0470381^CLIA|2217
Rainier Way^Renton^WA^98002^USA^M^Black Hawk^A|^PH^helpline@medilab.com^206^5549097
|115 Pike Plaza^Suite 2100^Seattle^WA^98122^USA^A|<CR>
OBR|||MICR9700342|654324^Throat culture^L|||200011270930|||THRT&Throat&HL70070|
1234567^Welby^M^J^Jr^Dr^MD|^206^4884144|||F<CR>
OBX||CE|626-2^Microorganism identified, Throat Culture^LN||L-12801^Bordetella pertussis^SNM|||F|
||200012161330|45D0470381|<CR>
```

This example demonstrates an ORU message for a laboratory report of Bordetella Pertussis, sent from a laboratory in Seattle to Washington Department of Health specifying that the pertussis microorganism was identified from the throat culture of the patient John Q Doe Jr.

The MSH segment shows a Version 2.3.1 ORU message being sent from a laboratory in Seattle to the NEDSS application in the Washington Department of Health on February 17, 2001, at 6:30 pm. The message control ID indicates that this is the 42nd message of the day from this laboratory. The PID segment shows that the patient named John Q. Doe, Jr., is a white male born on October 4th, 1984. All the patient identifiers and demographic details such as address, phone number, Social Security number, driver's license numbers, etc., are included in this segment. The NK1 segment shows the reported data for the patient's mother, Jane Lee Doe as the next of kin. The mother's contact information such as home address and phone number is shown here. The ORC segment shows the name, address, phone number, email address and CLIA identifier for MediLabCo., the ordering facility. The OBR segment specifies that a report identified as MICR9700342 was processed on November 27, 2000, at 9:30 am. The report was a throat culture requested by Dr. M.J. Welby, Jr., MD, whose phone number is (206) 488-4144. This is the final result. The OBX segment specifies that the organism Bordetella pertussis was identified from the throat culture. This is the final result and was observed on December 16, 2000, at 1:30 p.m.

2.4 HL7 Standard Segment Usage

Each message is composed of a series of segments. Each segment is identified by its unique three-letter code. The segments used in electronic laboratory-based reporting (ELR) are defined below. The segment definitions are given in the most logical order for ELR messages and do not strictly adhere to the order in which they are presented in the HL7 Standard. However, for ease of reference, the number preceding each segment and field name indicates its reference place in the HL7 Standard, Version 2.3.1. Because the segments here are re-ordered, these reference numbers are not always in sequential order.

The following format is used in this document for listing and defining message segments and fields. First, the message segment's use is defined, and a segment attribute table listing all fields defined in the segment is shown. In the segment attribute table, the following attributes are given for each field: sequence number within the segment, length of field, data type, whether required (R), optional (O), conditional (C), or for backwards compatibility (B), whether repeating (Y), the applicable table number for values, the field item number, and the field name.

Following the table, select fields are listed and defined. For each field, the HL7 segment code and reference number are listed, followed by the field name. Items in parentheses after the field name show respectively data type and length of field, whether the field is required or optional, and lists "repeating" if

the field is allowed to repeat. The HL7 item number follows the parenthesis and is given for reference convenience. As part of the definitions, usage notes for laboratory-based reporting are provided, a description of the data type is given in small font, and a statement about how the fields are valued in the example is given. Fields that we do not anticipate physicians using are not defined. Users interested in learning more about fields not discussed here should refer to the full text of Version 2.3.1 of the HL7 standard.

2.5 Segment Attribute Table Abbreviations

The abbreviated terms and their definitions used in the segment table headings are as follows:

| ABBREVIATION | DEFINITION |
|--------------|--|
| SEQ | The sequence of the elements as they are numbered in the segment. |
| LEN | The length of the element. |
| DT | The data type of the element. |
| OPT | Whether the field is required, optional, or conditional in a segment. Required fields are defined by HL7 2.3.1 and do not refer to requirements for reporting laboratory findings to public health agencies. The designations are: Required. Optional. Conditional on the trigger event or on some other field(s). The field definitions following the segment attribute table should specify the algorithm that defines the conditionality for the field. Not used with this trigger event. Left in for backward compatibility with previous versions of HL7. The field definitions following the segment attribute table should denote the optionality of the field for prior versions. |
| RP/# | Indicates if element repeats. IF the number of repetitions is limited, the number of allowed repetitions is given. |
| TBL# | Specific table reference. Tables used in public health messages are listed in Appendix C. |
| ITEM# | HL7 unique item number for each element. |
| Element Name | Descriptive name of element in the segment. |

3 SEGMENT DEFINITIONS

3.1 MESSAGE CONTROL SEGMENTS

These segments are necessary to support the functionality described in the Control/Query chapter of the HL7 standard.

3.1.1 Message Header (MSH) Segment

Used to define the intent, source, destination, and some specifics of the syntax of a message.

MSH Attributes

| SEQ | LEN | DT | R/O | RP# | TBL# | ITEM# | ELEMENT NAME |
|-----|-----|-----|-----|-----|------|-------|---|
| 1 | 1 | ST | R | | | 00001 | Field separator |
| 2 | 4 | ST | R | | | 00002 | Encoding characters |
| 3 | 180 | HD | O | | | 00003 | Sending application |
| 4 | 180 | HD | O | | | 00004 | Sending facility |
| 5 | 180 | HD | O | | | 00005 | Receiving application |
| 6 | 180 | HD | O | | | 00006 | Receiving facility |
| 7 | 26 | TS | O | | | 00007 | Date/Time of message |
| 8 | 40 | ST | O | | | 00008 | Security |
| 9 | 7 | CM | R | | 0076 | 00009 | Message type |
| | | | | | 0003 | | |
| 10 | 20 | ST | R | | | 00010 | Message control ID |
| 11 | 3 | PT | R | | | 00011 | Processing ID |
| 12 | 60 | VID | R | | 0104 | 00012 | Version ID |
| 13 | 15 | NM | O | | | 00013 | Sequence number |
| 14 | 180 | ST | O | | | 00014 | Continuation pointer |
| 15 | 2 | ID | O | | 0155 | 00015 | Accept acknowledgment type |
| 16 | 2 | ID | O | | 0155 | 00016 | Application acknowledgment type |
| 17 | 2 | ID | O | | | 00017 | Country code |
| 18 | 10 | ID | O | Y | 0211 | 00692 | Character set |
| 19 | 60 | CE | O | | | 00693 | Principal language of message |
| 20 | 20 | ID | O | | 0356 | 01317 | Alternate character set handling scheme |

Example segment of MSH:

MSH|^~\&||MediLabCo-Seattle^45D0470381^CLIA|NEDSS^1644^WA-DOH|WA-DOH|200102171830| |ORU^R01|200102170042|P|2.3.1|<CR>

This example segment shows a Version 2.3.1 ORU message being sent from a laboratory in Seattle to the NEDSS application in the Washington Department of Health on February 17, 2001, at 6:30 pm. The message control ID indicates that this is the 42nd message of the day from this laboratory.

MSH field definitions

Usage notes: We do not anticipate that several MSH fields (MSH-17-20) will be used for electronic laboratory reporting purposes; therefore, we do not provide definitions for them here.

MSH 2.24.1.1 Field separator (ST-1, Required) 00001

Definition: The character to be used as the field separator for the rest of the message. The field separator always appears in the 4th character position of MSH segment and is used to separate adjacent data fields within a segment. The recommended value is |, ASCII (124), as shown in our examples.

MSH 2.24.1.2 Encoding characters (ST-4, Required) 00002

Definition: Four characters in the following order:

| | | |
|------------------------|-----|-------------|
| Component separator | '^' | ASCII (94) |
| Repetition Separator | '~' | ASCII (126) |
| Escape character | '\' | ASCII (92) |
| Subcomponent separator | '&' | ASCII (38) |

Note that the characters in MSH-2 appear as:

|^~\&|

The component separator (^) separates adjacent components of a data field and the subcomponent separator (&) separates the adjacent subcomponents of a data field. An example of a compound element using components and subcomponents from PID-2, described below in another section of this document, would appear as:

|10543^^^^Columbia Valley Memorial Hospital&01D0355944&CLIA|

and not as:

|10543^^^^Columbia Valley Memorial Hospital~01D0355944~CLIA|

The tilde (~) should not be used as a separator but rather should be used to identify when a repeating field or component occurs.

MSH 2.24.1.3 Sending application (HD-180, Optional) 00003

Definition: This field uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. The field is entirely site-defined. By site agreement, implementers may use *User-defined table 0361 Sending/receiving application* for first component.

HD data type components: <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

In our examples, we have not valued this field.

MSH 2.24.1.4 Sending facility (HD-180, Optional) 00004

Definition: The originator of HL7 message will place the text name of the sending laboratory or reporting site, followed by the unique Clinical Laboratory Improvement Act (CLIA) identifier of the originating institution. Information about CLIA can be found at <http://www.cdc.gov/phppo/dls/dlshome.htm> on the World Wide Web.

For example: |MediLabCo-Seattle^45D0470381^CLIA|

HD data type components: <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

| | |
|-------------------|---|
| namespace ID | Text name of the sending laboratory |
| universal ID | CLIA number for the sending laboratory |
| universal ID type | "CLIA", indicating that the universal ID is a nationally assigned unique identifier |

MSH 2.24.1.5 Receiving application (HD-180, Optional) 00005

Definition: Uniquely identifies the receiving application among all other applications within the network enterprise. The network enterprise consists of all the applications that participate in the exchange of HL7 messages within the enterprise. Entirely site-defined. By site agreement, implementers may use *User-defined table 0361 Sending/receiving application* for first component.

HD data type components: <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

For example: |NEDSS^1644^WA-DOH|

MSH 2.24.1.6 Receiving facility (HD-180, Optional) 00006

Definition: This field identifies the receiving application among multiple identical applications running on behalf of different organizations. This may be used identify the receiving state health department systems. Certain public health agencies may request that a unique identifier for the state health department or specific program appear here.

HD data type components: <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

For example: |WA-DOH|

MSH 2.24.1.7 Date/time of message (TS-26, Optional) 00007

Definition: Date/time the sending system created the message.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]]]

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

For example: 6:30 pm, February 17, 2001, would appear as:

|200102171830|

MSH-8 Security (ST-40, Optional) 00008

Definition: This field may be used to implement application level security. Within HL7, a workgroup is studying further specification of this field.

MSH-9 Message type (CM-7, Required) 00009

Definition: The receiving system uses this field to know the data segments to recognize and, possibly, the application to which to route this message.

The specific components of fields using the CM data type are defined within the field descriptions. The components for this field are: <message type (ID)>^<trigger event (ID)>^<message structure (ID)> Refer to *HL7 Table 0076 - Message type*, *HL7 Table 0003 - Event type*, and *HL7 Table 0354 - Message structure* for values.

The unsolicited transmission of an observation message would appear as:

|ORU^R01|

MSH 2.24.1.10 Message control ID (ST-20, Required) 00010

Definition: Number or other identifier that uniquely identifies the message. The receiving system echoes this ID back to the sending system in the message acknowledgment. For electronic laboratory reporting, we recommend using a timestamp and counter as: YYYYLLDDHHMMSS.

The example below shows that the date of this message is February 17, 2001, and the sequence number is 0042.

|200102170042|

MSH 2.24.1.11 Processing ID (PT-3, Required) 00011

Definition: Used to decide how to process the message as defined in HL7 processing rules. Field appears as P for production, T for training, or D for debugging.

PT data type components: <processing ID (ID)>^<processing mode (ID)>

(1) Processing ID (ID). A value that defines whether the message is part of a production, training, or debugging system. Refer to *HL7 Table 0103-Processing ID* for valid values.

(2) Processing mode (ID). A value that defines whether the message is part of an archival process or an initial load. Refer to *HL7 Table 0207-Processing mode* for valid values. The default (blank) means current processing.

For Example: |P|

In our example, the use is production. The second component is not specified, indicating current processing as the default.

MSH 2.24.1.12 Version ID (VID-60, Required) 00012

Definition: Matched by the receiving system to its own HL7 version to be sure the message will be interpreted correctly.

VID data type components: <version ID (ID)>^<internationalization code (CE)>^<international version ID (CE)>

(1) Version ID (ID). Used to identify the HL7 version. Refer to *HL7 Table 0104 - Version ID* for valid values

(2) Internationalization code (CE). Used to identify the international affiliate country code. ISO 3166 provides a list of country codes that may be used (see *User-defined Table 0212 - Nationality*).

(3) International version ID (CE). Used when the international affiliate has more than a single local version associated with a single U.S. version.

In our examples, the version is 2.3.1.

MSH 2.24.1.13 Sequence number (NM-15, Optional) 00013

Definition: Non-null value in this field implies that the sequence number protocol is in use. This numeric field is incremented by one for each subsequent value.

In our examples, we have not valued this field.

MSH 2.24.1.14 Continuation pointer (ST-180, Optional) 00014

Definition: Used to define continuations in application-specific ways.

In our examples, we have not valued this field.

MSH 2.24.1.15 Accept acknowledgment type (ID-2, Optional) 00015

Definition: Identifies the conditions under which accept acknowledgments are required to be returned in response to this message. *HL7 Table 0155 - Accept/Application acknowledgment conditions* gives valid values. For electronic laboratory reporting, the default value is NE.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

MSH 2.24.1.16 Application acknowledgment type (ID-2, Optional) 00016

Definition: Identifies the conditions under which application acknowledgments are required to be returned in response to this message. See *HL7 Table 0155 - Accept/Application acknowledgment conditions* for values.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

For electronic laboratory reporting, acknowledgments are not expected, so we have not provided an example for this field.

3.2 PATIENT ADMINISTRATION MESSAGE SEGMENTS

3.2.1 Patient Identification (PID) Segment

Used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

| PID Attributes | | | | | | | |
|----------------|-----|-----|-----|------|------|-------|-----------------------------------|
| SEQ | LEN | DT | R/O | RP/# | TBL# | ITEM# | ELEMENT NAME |
| 1 | 4 | SI | O | | | 00104 | Set ID - PID |
| 2 | 20 | CX | B | | | 00105 | Patient ID (External) |
| 3 | 20 | CX | R | Y | | 00106 | Patient identifier list |
| 4 | 20 | CX | B | Y | | 00107 | Alternate patient ID - PID |
| 5 | 48 | XPN | R | Y | | 00108 | Patient name |
| 6 | 48 | XPN | O | Y | | 00109 | Mother's maiden name |
| 7 | 26 | TS | O | | | 00110 | Date/time of birth |
| 8 | 1 | IS | O | | 0001 | 00111 | Sex |
| 9 | 48 | XPN | O | Y | | 00112 | Patient alias |
| 10 | 80 | CE | O | Y | 0005 | 00113 | Race |
| 11 | 106 | XAD | O | Y | | 00114 | Patient address |
| 12 | 4 | IS | B | | 0289 | 00115 | County code |
| 13 | 40 | XTN | O | Y | | 00116 | Phone number - home |
| 14 | 40 | XTN | O | Y | | 00117 | Phone number - business |
| 15 | 60 | CE | O | | 0296 | 00118 | Primary language |
| 16 | 80 | CE | O | | 0002 | 00119 | Marital status |
| 17 | 80 | CE | O | | 0006 | 00120 | Religion |
| 18 | 20 | CX | O | | | 00121 | Patient account number |
| 19 | 16 | ST | B | | | 00122 | SSN number - patient |
| 20 | 25 | DLN | O | | | 00123 | Driver's license number - patient |
| 21 | 20 | CX | O | Y | | 00124 | Mother's identifier |
| 22 | 80 | CE | O | Y | 0189 | 00125 | Ethnic group |
| 23 | 60 | ST | O | | | 00126 | Birth place |
| 24 | 1 | ID | O | | 0136 | 00127 | Multiple birth indicator |
| 25 | 2 | NM | O | | | 00128 | Birth order |
| 26 | 80 | CE | O | Y | 0171 | 00129 | Citizenship |
| 27 | 60 | CE | O | | 0172 | 00130 | Veterans military status |
| 28 | 80 | CE | O | | 0212 | 00739 | Nationality |
| 29 | 26 | TS | O | | | 00740 | Patient death date and time |
| 30 | 1 | ID | O | | 0136 | 00741 | Patient death indicator |

Example:

PID|||10543^^^^Columbia Valley Memorial Hospital&01D0355944&CLIA| 95101100001^^^^MediLabCo-Seattle&45D0470381&CLIA||Doe^John^Q^Jr^L|Clemmons^^^^M|19841004|M||W|2166 Wells Dr ^Apt B^Seattle^WA^98109^USA^M^King^A||^PRN^PH^^206^6793240^call after 5:00 pm only ~ ^^^206^6795772||S^single^HL70002|||423523049|DOE J34556057^WA^20011101||N||||| <CR>

This example segment shows that the patient named John Q. Doe, Jr., is a white male born on October 4th, 1984. All the patient identifiers and demographic details such as address, phone number, Social Security number, driver's license numbers, etc., are included in this segment.

3.3.2.0 PID field definitions

Usage Notes: We do not anticipate that several PID fields (PID-23 to 28) will be used for electronic laboratory reporting purposes; therefore, we do not provide definitions for them here.

PID 3.3.2.1 Set ID - PID (SI-4, Optional) 00104

Definition: The Set ID field numbers the repetitions of the PID segment (i.e., multiple patient reports). For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

For laboratory-based reporting, it is strongly recommended that information for only one patient be sent per message, in other words one PID per MSH. Thus PID-1 may be left blank or appear as:

[1]

PID-2 Patient ID (CX-20, Conditional) 00105

Definition: ***This field has been retained for backward compatibility only.*** With HL7 Version 2.3.1, the arbitrary term of “external ID” has been removed from the name of this field. The repetition, assigning authority, facility, and identifier type code attributes of *PID-3-patient identifier list* allow for distinctive identifier representation.

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

- (1) ID number (ST).
- (2) Check digit (ST). Defined as in the CK data type except as a ST. The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.
- (3) Code identifying check digit scheme employed (ID). Refer to *HL7 Table 0061 - Check digit scheme* for valid values.
- (4) Assigning authority (HD).
Subcomponents of (4): <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)
- (5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the Assigning authority' component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.
- (6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

In our examples, we have not valued this field.

PID-3 Patient identifier list (CX-20, Required, Repeating) 00106

Definition: This field contains the list of identifiers (one or more) used by the facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, etc.)

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

- (1) ID number (ST).
- (2) Check digit (ST). Defined as in the CK data type except as a ST. The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.
- (3) Code identifying check digit scheme employed (ID). Refer to *HL7 Table 0061 - Check digit scheme* for valid values.
- (4) Assigning authority (HD).

Subcomponents of (4): <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)
 (5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the 'Assigning authority' component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.
 (6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
 Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

HL7 Version 2.3 provided a field to record the patient's Social Security number in *PID-19 - SSN - patient*. With Version 2.3.1, HL7 recommends using *PID-3-patient identifier list* for all patient identifiers along with the appropriate identifier type code (*User-defined Table 0203 - Identifier type*).

Laboratory-based reporting will use this field for the patient identifiers. For example, an isolate from the Columbia Valley Memorial Hospital laboratory is sent to a reference laboratory named MediLabCo, and the result is reported to public health officials by MediLabCo. In the laboratory reporting scenario described, the unique patient identifier from MediLabCo would always appear first with the typecode PI, along with name and CLIA number for MediLabCo as the assigning authority. Repetitions of the field allow a reporting laboratory also to provide the medical record number and other patient identifiers assigned at the original institution that submitted a specimen for testing (i.e., Columbia Valley Memorial Hospital). The type code for the Columbia Valley Hospital identifier will be PT for Patient external identifier.

For example:

```
|95101100001^^^^PI^MediLabCo-Seattle&45D0470381&CLIA ~ 10543^^^^PT^Columbia Valley  
Memorial Hospital&01D0355944&CLIA|
```

Since HL7 allows users to define the subcomponents of the HD data type, the <assigning facility> has the following definition for the laboratory-based reporting message:

| | |
|-------------------|--|
| namespace ID | Name of originating laboratory |
| universal ID | Unique CLIA number of originating laboratory |
| universal ID type | "CLIA" |

If a hospital laboratory will be reporting the result (and thus there will be only one hospital involved in collection and processing of the specimen), then the hospital laboratory's patient identifier and the hospital CLIA ID will appear with typecode PI; no information will appear as an external ID. Likewise, if a reference laboratory receives a specimen from a doctor's office and no preceding originating laboratory is used, then the reference laboratory's patient identifier and reference laboratory CLIA ID will appear with the typecode PI; no information will appear as an external ID.

If a hospital laboratory is reporting the results of a test performed at a reference laboratory, the following scenario would apply. Columbia Valley Memorial Hospital has sent a specimen to MediLabCo for testing. The test is performed and the results are sent back to Columbia Valley Memorial Hospital, which then electronically transmits the results to a public health agency. The unique patient identifier from Columbia Valley Memorial Hospital would appear with typecode PI, internal patient ID, and the unique patient identifier from MediLabCo would appear next after the repeat delimiter with typecode PT, external patient ID. Identification of the outside laboratory performing the test will appear in OBX-15 (i.e., Producer's ID). As an example, if Columbia Valley Memorial Hospital is reporting the results of a test performed at MediLabCo, then the identifiers would appear as:

```
|10543^^^^PI^Columbia Valley Memorial Hospital&01D0355944&CLIA ~  
95101100001^^^^PT^MediLabCo-Seattle&45D0470381&CLIA|
```

This field is listed as a required field by HL7 2.3.1. Although uncommon, some laboratories may not currently collect information which may be used for either PID-3 or PID-5. It is strongly recommended that either a personal identifier unique to the testing laboratory (PID-3) or the patient name (PID-5) be provided; however, if neither are available the message for reporting should still be sent with the following populating the field:

```
|nodata|
```

Repeating Identifiers

Repeating identifiers are used when there is a need to represent multiple internal identifiers used at an institution. The field then would appear as:

[95101100001^^^^PI^MediLabCo-Seattle&45D0470381&CLIA ~ 56850125M7^^^^PI^MediLabCo-Boston&45D0470382&CLIA]

Anonymous Identifiers

Anonymous identifiers are occasionally used for protecting patient identity in reporting certain results. For instance, a state health department may choose to use a scheme for generating an anonymous identifier for reporting a patient that has had a positive human immunodeficiency virus antibody test. That scheme may use various contributing data for generating the identifier, such as parts of the Social Security number, date of birth, and other features. Anonymous identifiers can be used in PID-2, 3, and 4 by replacing the medical record number or other non-anonymous identifier. The type code for an anonymous identifier will appear as ANON. It is important that the receiver of the data be able to determine that the identifier is in fact created through some anonymizing scheme. This is done by placing the creator of the scheme in the sub-component for the "Assigning Authority". For example, a laboratory using a scheme regulated by the Arizona state health department for reporting HIV results creates an anonymous identifier. The message would appear as:

[56850125M7^^^^ANON^AZDOH_HIV]

Note: There is no standard scheme for generating anonymous identifiers and there is no current list of assigning facilities that generate anonymizing schemes.

PID 3.3.2.3.1 Alternate Patient ID (CX-20, Backward Compatibility, Repeating) 00107

Definition: ***This field has been retained for backward compatibility only.*** *PID-3-patient identifier list* should be used for all patient identifiers.

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

- (1) ID number (ST).
- (2) Check digit (ST). Defined as in the CK data type except as a ST. The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.
- (3) Code identifying check digit scheme employed (ID). Refer to *HL7 Table 0061 - Check digit scheme* for valid values.
- (4) Assigning authority (HD).
Subcomponents of (4): <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)
- (5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the 'Assigning authority' component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.
- (6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>
In our examples, we have not valued this field.

PID-5 Patient name (XPN-48, Required, Repeating) 00108

Definition: The current, assumed legal name of the patient should be sent in this field. The name type code in this field should always be "L - Legal." All other names for the patient should be sent in *PID-9-patient alias*. Repetition of this field is allowed only for representing the same name in different character sets, a situation that will rarely arise. Therefore, for practical purposes this field should be considered not repeating.

XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>

For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

For example:

|Doe^John^Q^Jr^^^L|

This field is listed as a required field by HL7 2.3.1. Although uncommon, some laboratories may not currently collect information which may be used for either PID-3 or PID-5. It is strongly recommended that either a personal identifier unique to the testing laboratory (PID-3) or the patient name (PID-5) be provided; however, if neither are available the message for reporting should still be sent with the following populating the field:

|nodata|

Cancer Reporting Comment: PID-5 corresponds to NAACCR item numbers 2230, 2240, 2250.

PID-6 Mother's maiden name (XPN-48, Optional) 00109

Definition: This field contains the family name under which the mother was born (i.e., before marriage). It is used to distinguish between patients with the same last name. The name type code should be valued "M" for "Maiden Name." If a system needs additional information about the mother, the NK1 segment should be used.

XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>

For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

For example: |Clemmons^^^^^^M|

PID-7 Date/time of birth (TS-26, Optional) 00110

Definition: This field contains the patient's date and time of birth.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[S[S[S[S]]]]]]]] []

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

For example: October 04, 1984 would appear as:

|19841004|

If DOB is not available, patient's age may be sent in OBX-3 & OBX-5. See description in section OBX 7.3.2.3 of this document.

Cancer Reporting Comment: Corresponds to NAACCR item number 240.

PID 3.3.2.8 Sex (IS-1, Optional) 00111

Definition: This field contains the patient's sex. Refer to *User-defined Table 0001 - Sex* for valid values.

Cancer Reporting Comment: Corresponds to NAACCR item number 220.

PID 3.3.2.9 Patient alias (XPN-48, Optional, Repeating) 00112

Definition: This field contains names by which the patient has been known at some time. It is recommended that data be sent if available.

XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)>

For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

In our examples, we have not valued this field.

Cancer Reporting Comment: Corresponds to NAACCR item number 2280.

PID-10 Race (CE-80, Optional, Repeating) 00113

Definition: This field identifies the patient's race. Refer to *User-defined Table 0005 - Race* for suggested values.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

Cancer Reporting Comment: Corresponds to NAACCR item number 160. Note NAACCR codes for race are different.

PID-11 Patient address (XAD-106, Optional, Repeating) 00114

Definition: This field lists the mailing address of the patient. Multiple addresses for the same person may be sent in the following sequence: the primary mailing address must be sent first in the sequence; if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence.

XAD data type components: <street address (ST)>^<other designation (ST)>^<city (ST)>^<state or province (ST)> ^<zip or postal code (ST)>^<country (ID)>^<address type (ID)>^<other geographic designation (ST)>^<county/parish code (IS)>^<census tract (IS)>^<address representation code (ID)>

For valid values in these components, refer to *User-defined Table 0212 - Nationality* for country codes, *HL7 Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

For example: |2166Wells Dr^Apt B^Seattle^WA^98109^USA^M^^King^^A|

This information is of great importance to public health agencies as it allows health officials to notify local agencies of potential public health problems in their jurisdictions.

Cancer Reporting Comment: Corresponds to NAACCR item numbers 70, 80,100, 2330.

PID-12 County Code (IS-4, Backward Compatibility Only) 00115

Definition: ***This field has been retained for backward compatibility.*** This field contains the patient's county code. The county can now be supported in the county/parish code component of the XAD data type (*PID-11-patient address*). *User-defined table 0289 - County/parish* is used as the HL7 identifier for the user-defined table of values for this field.

In our examples, we have not valued this field.

PID-13 Phone number - home (XTN-40, Optional, Repeating) 00116

Definition: The patient's personal phone numbers. All personal phone numbers for the patient are sent in this sequence. The first sequence is considered the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence. For laboratory-based reporting, phone numbers provided in the first component of PID-13 will be accepted as well.

XTN data type format and components: [NNN] [(999)]999-9999[X99999][B99999][C any text]^<telecommunication use code (ID)>^<telecommunication equipment type (ID)>^<email address (ST)>^<country code (NM)>^<area/city code (NM)>^<phone number (NM)>^<extension (NM)>^<any text (ST)>

Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

For example:

|^PRN^PH^^^206^6793240^^call after 5:00 pm only~^VHN^PH^^^206^6795772|
or
|(206) 679-3240|

Cancer Reporting Comment: Corresponds to NAACCR item number 2360.

PID-14 Phone number - business (XTN-40, Optional, Repeating) 00117

Definition: Patient's business phone number. Repetitions are permitted, with the first one the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

XTN data type format and components: [NNN] [(999)]999-9999[X99999][B99999][C any text]^<telecommunication use code (ID)>^<telecommunication equipment type (ID)>^<email address (ST)>^<country code (NM)>^<area/city code (NM)>^<phone number (NM)>^<extension (NM)>^<any text (ST)>

Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

In our examples, we have not valued this field.

PID-15 Primary language (CE-60, Optional) 00118

Definition: Patient's primary language. Refer to *User-defined Table 0296 - Language* (ISO 639) for suggested values.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

PID 3-16 Marital status (CE-80, Optional) 00119

Definition: This field contains the patient's marital status. Refer to *user-defined table 0002 - Marital status* for suggested values.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

For example: |S^single^HL70002|

Cancer Reporting Comment: Corresponds to NAACCR item number 150.

PID 3-17 Religion (CE-80, Optional) 00120

Definition: This field contains the patient's religion, for example, Baptist, Catholic, Methodist, etc. *User-defined table 0006 - Religion* from HL7 standard Version 2.3 is used as the HL7 identifier for the user-defined table of values for this field.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

Cancer Reporting Comment: Corresponds to NAACCR item number 260.

PID-18 Patient account number (CX-20, Optional) 00121

Definition: This field contains the patient account number assigned by accounting to which all charges, payments, etc., are recorded. It is used to identify the patient's account. Refer to *HL7 table 0061 - Check digit scheme* in Chapter 2.

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

- (1) ID number (ST).
- (2) Check digit (ST). Defined as in the CK data type except as a ST. The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.
- (3) Code identifying check digit scheme employed (ID). Refer to *HL7 Table 0061 - Check digit scheme* for valid values.
- (4) Assigning authority (HD).
Subcomponents of (4): <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)
- (5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the 'Assigning authority' component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.
- (6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

In our examples, we have not valued this field.

PID-19 SSN number - patient (ST-60, Backward Compatibility) 00122

Definition: ***This field has been retained for backward compatibility only.*** It is recommended to use *PID-3-patient identifier list* for all patient identifiers. However, in order to maintain backward compatibility, this field should also be populated. When used for backward compatibility, this field contains the patient's Social Security number. This number may also be a RR retirement number.

For example: |423523049|

Cancer Reporting Comment: Corresponds to NAACCR item number 2320.

PID-20 Driver's license number – patient (DLN-25, Optional) 00123

Definition: This field contains the patient's driver's license number. The default of the second component is the state in which the patient's license is registered.

DLN data type components: <license number (ST)> ^ <issuing state, province, country (IS)> ^ <expiration date (DT)>

For example: |DOEJ34556057^WA^20011101|

PID-21 Mother's identifier (CX-20, Optional, Repeating) 00124

Definition: This field is used as a link field for newborns, for example. Typically a patient ID or account number may be used. This field can contain multiple identifiers for the same mother.

CX data type components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)>

Components are defined as follows:

- (1) ID number (ST)
- (2) Check digit (ST) (The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null.)
- (3) Code identifying check digit scheme employed (ID) Refer to *HL7 Table 0061 - Check digit scheme* for valid values.
- (4) Assigning authority (HD)
Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)>
- (5) Identifier type code (IS)
A code corresponding to the type of identifier. This code may be used as a qualifier to the 'Assigning authority' component. Refer to *User-defined Table 0203 - Identifier type* for suggested values.

- (6) Assigning facility (HD)
Definition: The place or location identifier where the identifier was first assigned to the patient-part of the history of the identifier.
Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)>

In our examples, we have not valued this field. This field may be populated with any number of identifiers for the patient's mother using type codes as described in PID-3 above and shown in *User-defined Table 0203 - Identifier type*.

PID-22 Ethnic group (CE-80, Optional, Repeating) 00125

Definition: This field further defines patient ancestry. Suggested values are listed in *User-defined Table 0189 - Ethnic group*. State- or locally-defined codes may be listed in the first triplet. According to HL7, the second triplet of the CE data type for Ethnic group (alternate identifier, alternate text, and name of alternate coding system) is reserved for codes consistent with the categories established by the U.S. Office of Management and Budget (OMB). When both triplets are used, the second triplet codes must map to the OMB-compliant codes.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>.
Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

Cancer Reporting Comment: Corresponds to NAACCR item number 190. Note that NAACCR codes for ethnic group are different.

PID-29 Patient death date and time (TS-26, Optional) 00740

Definition: This field contains the date and time at which the patient death occurred. This field should only be valued if PID-30 is valued 'yes.'

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[S[S[S[S]]]]]]]]]

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

In our examples, we have not valued this field.

PID-30 Patient death indicator (ID-1, Optional) 00741

Definition: This field indicates whether or not the patient is deceased. Refer to *HL7 Table 0136 - Yes/No indicator* for valid values.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

3.2.2 Next of Kin/Associated Parties (NK1) Segment

Contains information about the patient's next of kin and other associated or related parties. This is a repeating segment, allowing for multiple related parties.

NK1 Attributes

| SEQ | LEN | DT | R/O | RP/# | TBL# | ITEM# | ELEMENT NAME |
|-----|-----|-----|-----|------|---------------|-------|-----------------------------------|
| 1 | 4 | SI | R | | | 00190 | Set ID - NK1 |
| 2 | 48 | XPN | O | Y | | 00191 | Name |
| 3 | 60 | CE | O | | 0063 | 00192 | Relationship |
| 4 | 106 | XAD | O | Y | | 00193 | Address |
| 5 | 40 | XTN | O | Y | | 00194 | Phone number |
| 6 | 40 | XTN | O | Y | | 00195 | Business phone number |
| 7 | 60 | CE | O | | 0131 | 00196 | Contact role |
| 8 | 8 | DT | O | | | 00197 | Start date |
| 9 | 8 | DT | O | | | 00198 | End date |
| 10 | 60 | ST | O | | | 00199 | Next of kin/AP job title |
| 11 | 20 | JCC | O | | 0327/ 0328 | 00200 | Next of kin/AP job code/class |
| 12 | 20 | CX | O | | | 00201 | Next of kin/AP employee number |
| 13 | 90 | XON | O | Y | | 00202 | Organization name - NK1 |
| 14 | 80 | CE | O | | 0002 | 00119 | Marital status |
| 15 | 1 | IS | O | | 0001 | 00111 | Sex |
| 16 | 26 | TS | O | | | 00110 | Date/time of birth |
| 17 | 2 | IS | O | Y | 0223 | 00755 | Living dependency |
| 18 | 2 | IS | O | Y | 0009 | 00145 | Ambulatory status |
| 19 | 80 | CE | O | Y | 0171 | 00129 | Citizenship |
| 20 | 60 | CE | O | | 0296 | 00118 | Primary language |
| 21 | 2 | IS | O | | 0220 | 00742 | Living arrangement |
| 22 | 80 | CE | O | | 0215 | 00743 | Publicity code |
| 23 | 1 | ID | O | | 0136 | 00744 | Protection indicator |
| 24 | 2 | IS | O | | 0231 | 00745 | Student indicator |
| 25 | 80 | CE | O | | 0006 | 00120 | Religion |
| 26 | 48 | XPN | O | Y | | 00746 | Mother's maiden name |
| 27 | 80 | CE | O | | 0212 | 00739 | Nationality |
| 28 | 80 | CE | O | Y | 0189 | 00125 | Ethnic group |
| 29 | 80 | CE | O | Y | 0222 | 00747 | Contact reason |
| 30 | 48 | XPN | O | Y | | 00748 | Contact person's name |
| 31 | 40 | XTN | O | Y | | 00749 | Contact person's telephone number |
| 32 | 106 | XAD | O | Y | | 00750 | Contact person's address |
| 33 | 32 | CX | O | Y | | 00751 | Next of kin/AP's identifiers |
| 34 | 2 | IS | O | | 0311 | 00752 | Job status |
| 35 | 80 | CE | O | Y | 0005 | 00113 | Race |
| 36 | 2 | IS | O | | 0295 | 00753 | Handicap |
| 37 | 16 | ST | O | | | 00754 | Contact person social security # |

Example:

NK1|1|Doe^Jane^Lee^^^^L|MTH^mother^HL70063|2166 Wells Dr^Apt
B^Seattle^WA^98109^USA^M^^King^^A|(206) 679-3240^PRN^PH^^^206^6793240|<CR>

This example segment shows the reported data for the patient's mother, Jane Lee Doe, as the next of kin. The mother's contact information such as home address and phone number is shown here.

NK1 field definitions

Usage notes: We do not anticipate that several NK1 fields (NK1-7 to 37) will be used for electronic laboratory reporting purposes; therefore, we do not provide definitions for them here.

The NK1 segment provides standard fields for those described as ZLR fields 6-9 in the previous guidelines using Version 2.3, entitled, "Health Level Seven Specifications for Electronic Laboratory-Based Reporting of Public Health Information," February 20, 2001.

NK1-1 Set ID - NK1 (SI-4, Required) 00190

Definition: The Set ID field numbers the repetitions of the segment within its association with the PID. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

1 indicates that this segment is the first set of next of kin data, and 2 indicates that this is the second set of next of kin data.

NK1-2 Name (XPN-48, Optional, Repeating) 00191

Definition: This field gives the name of the next of kin or associated party. Multiple names for the same person are allowed, but the legal name must be sent in the first sequence. If the legal name is not sent, then the repeat delimiter must be sent in the first sequence.

XPN data type components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., JR or III) (ST)>^<prefix (e.g., DR) (ST)>^<degree (e.g., MD) (IS)>^<name type code(ID)>^<name representation code (ID)>

For valid values, refer to *User-defined Table 0360 - Degree* for the degree component, to *HL7 Table 0200 - Name type* for the name type code, and to *HL7 Table 4000 - Name/address representation* for the name representation code.

For example: |Doe^Jane^Lee^^^^L|

NK1-3 Relationship (CE-60, Optional) 00192

Definition: This field defines the personal relationship of the next of kin. *User-defined Table 0063 - Relationship* gives suggested values from Version .

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

For example: |MTH^mother^HL70063|

NK1-4 Address (XAD-106, Optional, Repeating) 00193

Definition: This field lists the mailing address of the next of kin/associated party identified above. Multiple addresses for the same person may be sent in the following sequence: the primary mailing address must be sent first in the sequence; if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence. If there is only one repetition of this field and an address type is not given, it is assumed to be the primary mailing address.

XAD data type components: <street address (ST)>^<other designation (ST)>^<city (ST)>^<state or province (ST)>^<zip or postal code (ST)>^<country (ID)>^<address type (ID)>^<other geographic designation (ST)>^<county/parish code (IS)>^<census tract (IS)>^<address representation code (ID)>

For valid values in these components, refer to *User-defined Table 0212 - Nationality* for country codes, *HL7 Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

For example: |2166 Wells Dr^Apt B^Seattle^WA^98109^USA^M^^King^^A|

When sending multiple addresses, the appropriate type code must be indicated.

NK1-5 Phone number (XTN-40, Optional, Repeating) 00194

Definition: The next of kin/associated party's personal phone numbers. All personal phone numbers for the next of kin/associated party are sent in this sequence. The first sequence is considered the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

XTN data type format and components: [NNN] [(999)]999-9999[X99999][B99999][C any text]^<telecommunication use code (ID)>^<telecommunication equipment type (ID)>^<email address (ST)>^<country code (NM)>^<area/city code (NM)>^<phone number (NM)>^<extension (NM)>^<any text (ST)>

Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

For example: |(206) 679-3240^PRN^PH^^^206^6793240|

NK1 3.3.5.6 Business phone number (XTN-40, Optional, Repeating) 00195

Definition: Next of kin/associated party's business phone numbers. The first sequence is the primary number. If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

XTN data type format and components: [NNN] [(999)]999-9999[X99999][B99999][C any text]^<telecommunication use code (ID)>^<telecommunication equipment type (ID)>^<email address (ST)>^<country code (NM)>^<area/city code (NM)>^<phone number (NM)>^<extension (NM)>^<any text (ST)>

Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

In our examples, we have not valued this field.

3.3 SEGMENTS COMMON TO ALL ORDERS

3.3.1 Common Order (ORC) Segment

Used to transmit fields that are common to all orders (all types of services that are requested).

ORC Attributes

| SEQ | LEN | DT | OPT | RP/# | TBL# | ITEM# | ELEMENT NAME |
|-----|-----|-----|-----|------|------|-------|----------------------------------|
| 1 | 2 | ID | R | | 0119 | 00215 | Order Control |
| 2 | 22 | EI | C | | | 00216 | Placer Order Number |
| 3 | 22 | EI | C | | | 00217 | Filler Order Number |
| 4 | 22 | EI | O | | | 00218 | Placer Group Number |
| 5 | 2 | ID | O | | 0038 | 00219 | Order Status |
| 6 | 1 | ID | O | | 0121 | 00220 | Response Flag |
| 7 | 200 | TQ | O | | | 00221 | Quantity/Timing |
| 8 | 200 | CM | O | | | 00222 | Parent |
| 9 | 26 | TS | O | | | 00223 | Date/Time of Transaction |
| 10 | 120 | XCN | O | Y | | 00224 | Entered By |
| 11 | 120 | XCN | O | Y | | 00225 | Verified By |
| 12 | 120 | XCN | O | Y | | 00226 | Ordering Provider |
| 13 | 80 | PL | O | | | 00227 | Enterer's Location |
| 14 | 40 | XTN | O | Y/2 | | 00228 | Call Back Phone Number |
| 15 | 26 | TS | O | | | 00229 | Order Effective Date/Time |
| 16 | 200 | CE | O | | | 00230 | Order Control Code Reason |
| 17 | 60 | CE | O | | | 00231 | Entering Organization |
| 18 | 60 | CE | O | | | 00232 | Entering Device |
| 19 | 120 | XCN | O | Y | | 00233 | Action By |
| 20 | 40 | CE | O | | 0339 | 01310 | Advanced Beneficiary Notice Code |
| 21 | 60 | XON | O | Y | | 01311 | Ordering Facility Name |
| 22 | 106 | XAD | O | Y | | 01312 | Ordering Facility Address |
| 23 | 48 | XTN | O | Y | | 01313 | Ordering Facility Phone Number |
| 24 | 106 | XAD | O | Y | | 01314 | Ordering Provider Address |

Example:

ORC|CN|MediLabCo - Northwest Pathology Ltd., CentralCampus^^45D0470381^^CLIA|2217 Rainier Way^^Renton^WA^98002^USA^M^^Black Hawk^^A|^PH^helpline@medilab.com^^206^5549097|115 Pike Plaza^Suite 2100^Seattle^WA^98122^USA^^^A|<CR>

This example segment shows the name, address, phone number, email address and CLIA identifier for MediLabCo., the ordering facility.

2.3.1.0 ORC field definitions

Usage notes: We do not anticipate that several ORC fields (ORC-2 to 20) will be used for electronic laboratory reporting purposes; therefore, we do not provide definitions for them here.

This segment is used to replace ZLR fields 1-4 as described in the previous ELR Guide using Version 2.3.

ORC 4.3.1.1 Order Control (ID-2, Required) 00215

Definition: Determines the function of the order segment. Refer to *HL7 Table 0119 – Order control codes and their meaning* for valid entries.

ID coded value for HL7 –defined tables: The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. Examples of ID fields include *MSH-12-Version ID* and *PD1-12-Protection indicator*.

For example: |CN|

ORC-21 Ordering facility name (XON-60, Optional, Repeating) 01311

Definition: Periodically, tests are ordered from facilities without specifying an ordering provider. For instance, an outpatient surgical facility may send biopsy tissue for pathologic examination without specifying the surgeon that actually performed the biopsy. In the case where no ordering provider is identified, knowledge of the ordering facility allows public health officials to follow-up on positive tests to obtain further clinical and epidemiologic information. Information on the ordering facility is most relevant to cancer registries.

XON data type components: <organization name (ST)> ^ <organization name type code (IS)> ^ <ID Number (NM)> ^ <check digit (NM)> ^ <code identifying the check digit scheme employed (ID)> ^ <assigning authority (HD)> ^ <identifier type code (IS)> ^ <assigning facility ID (HD)> ^ <name representation code (ID)> Subcomponents of assigning authority: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)> Subcomponents of assigning facility: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

The facility's CLIA identifier should be placed in the third component <ID number (NM)> if there is one available, and "CLIA" should appear in <assigning authority (HD)> indicating that the ID number used here to identify the laboratory has been assigned by CLIA

For example: |MediLabCo - Northwest Pathology Ltd., Central Campus^^45D0470381^^CLIA|

ORC-22 Ordering facility address (XAD-106, Optional, Repeating) 01312

Definition: This field contains the address of the facility placing the order.

XAD data type components: <street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code (ST)> ^ <country (ID)> ^ <address type (ID)> ^ <other geographic designation (ST)> ^ <county/parish code (IS)> ^ <census tract (IS)> ^ <address representation code (ID)>

For valid values in these components, refer to *User-defined Table 0212 - Nationality* for country codes, *HL7 Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

For example: |2217 Rainier Way^^Renton^WA^98002^USA^M^^Black Hawk^^A|

ORC-23 Ordering facility phone number (XTN-48, Optional, Repeating) 01313

Definition: This field contains the telephone number of the facility placing the order. This field further identifies the laboratory identified in ORC-21.

XTN data type format and components: [NNN] [(999)]999-9999[X99999][B99999][C any text]^<telecommunication use code (ID)>^<telecommunication equipment type (ID)>^<email address (ST)>^<country code (NM)>^<area/city code (NM)>^<phone number (NM)>^<extension (NM)>^<any text (ST)>

Refer to *HL7 Table 0201 - Telecommunication use code* and *HL7 Table 0202 - Telecommunication equipment type* for valid values.

For example: |^ASN^PH^helpline@medilab.com^^206^5549097|

ORC-24 Ordering provider address (XAD-106, Optional, Repeating) 01314

Definition: This field contains the address of the care provider requesting the order. This field contains relevant address information for the ordering provider described in OBR-16.

XAD data type components: <street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code (ST)> ^ <country (ID)> ^ <address type (ID)> ^ <other geographic

designation (ST)> ^ <county/parish code (IS)> ^ <census tract (IS)> ^ <address representation code (ID)>

For valid values in these components, refer to *User-defined Table 0212 - Nationality* for country codes, *HL7 Table 0190 - Address type* for address type codes, *User-defined Table 0289 - County/parish* for county/parish codes, *User-defined Table 0288 - Census Tract* for census tract codes, and *HL7 Table 4000 - Name/address representation* for address representation codes.

For example: |115 Pike Plaza^Suite 2100^Seattle^WA^98122^USA^^^^^A|

3.3.2 Observation Request Segment (OBR)

The Observation Request (OBR) segment is used to transmit information specific to an order for a diagnostic study or observation, physical exam, or assessment. The OBR defines the attributes of a particular request for diagnostic services or clinical observations. For laboratory-based reporting, the OBR defines the attributes of the original request for laboratory testing. Essentially, the OBR describes a battery or panel of tests that is being requested or reported. The OBR is somewhat analogous to a generic lab slip that is filled out when physician requests a lab test. The individual test names and results for the panel of tests performed are reported in OBX segments, which are described below. As defined by the ORU syntax, there can be many OBX's per OBR, and there can be many OBR's per PID.

OBR Attributes

| SEQ | LEN | DT | OPT | RP/# | TBL# | ITEM # | ELEMENT NAME |
|-----|-----|-----|-----|------|------|--------|---|
| 1 | 4 | SI | O | | | 00237 | Set ID – OBR |
| 2 | 22 | EI | C | | | 00216 | Placer Order Number |
| 3 | 22 | EI | C | | | 00217 | Filler Order Number + |
| 4 | 200 | CE | R | | | 00238 | Universal Service ID |
| 5 | 2 | ID | X | | | 00239 | Priority |
| 6 | 26 | TS | X | | | 00240 | Requested Date/Time |
| 7 | 26 | TS | C | | | 00241 | Observation Date/Time # |
| 8 | 26 | TS | O | | | 00242 | Observation End Date/Time # |
| 9 | 20 | CQ | O | | | 00243 | Collection Volume * |
| 10 | 60 | XCN | O | Y | | 00244 | Collector Identifier * |
| 11 | 1 | ID | O | | 0065 | 00245 | Specimen Action Code * |
| 12 | 60 | CE | O | | | 00246 | Danger Code |
| 13 | 300 | ST | O | | | 00247 | Relevant Clinical Info. |
| 14 | 26 | TS | C | | | 00248 | Specimen Received Date/Time * |
| 15 | 300 | CM | O | | 0070 | 00249 | Specimen Source * |
| 16 | 80 | XCN | O | Y | | 00226 | Ordering Provider |
| 17 | 40 | XTN | O | Y/2 | | 00250 | Order Callback Phone Number |
| 18 | 60 | ST | O | | | 00251 | Placer Field 1 |
| 19 | 60 | ST | O | | | 00252 | Placer Field 2 |
| 20 | 60 | ST | O | | | 00253 | Filler Field 1 + |
| 21 | 60 | ST | O | | | 00254 | Filler Field 2 + |
| 22 | 26 | TS | C | | | 00255 | Results Rpt/Status Chng-Date/Time + |
| 23 | 40 | CM | O | | | 00256 | Charge to Practice + |
| 24 | 10 | ID | O | | 0074 | 00257 | Diagnostic Serv Sect ID |
| 25 | 1 | ID | C | | 0123 | 00258 | Result Status + |
| 26 | 400 | CM | O | | | 00259 | Parent Result + |
| 27 | 200 | TQ | O | Y | | 00221 | Quantity/Timing |
| 28 | 150 | XCN | O | Y/5 | | 00260 | Result Copies To |
| 29 | 200 | CM | O | | | 00261 | Parent * |
| 30 | 20 | ID | O | | 0124 | 00262 | Transportation Mode |
| 31 | 300 | CE | O | Y | | 00263 | Reason for Study |
| 32 | 200 | CM | O | | | 00264 | Principal Result Interpreter + |
| 33 | 200 | CM | O | Y | | 00265 | Assistant Result Interpreter + |
| 34 | 200 | CM | O | Y | | 00266 | Technician + |
| 35 | 200 | CM | O | Y | | 00267 | Transcriptionist + |
| 36 | 26 | TS | O | | | 00268 | Scheduled Date/Time + |
| 37 | 4 | NM | O | | | 01028 | Number of Sample Containers * |
| 38 | 60 | CE | O | Y | | 01029 | Transport Logistics of Collected Sample * |
| 39 | 200 | CE | O | Y | | 01030 | Collector's Comment * |
| 40 | 60 | CE | O | | | 01031 | Transport Arrangement |

| SEQ | LEN | DT | OPT | RP/# | TBL# | ITEM # | ELEMENT NAME |
|-----|-----|----|-----|------|------|--------|-----------------------------------|
| 41 | 30 | ID | O | | 0224 | 01032 | Responsibility |
| 42 | 1 | ID | O | | 0225 | 01033 | Transport Arranged |
| 43 | 200 | CE | O | Y | | 01034 | Escort Required |
| 44 | 80 | CE | O | | 0088 | 00393 | Planned Patient Transport Comment |
| 45 | 80 | CE | O | Y | 0340 | 01316 | Procedure Code |
| | | | | | | | Procedure Code Modifier |

Examples:

For pertussis reporting:

OBR|||MICR9700342|654324^Throat culture^L|||200011270930|||||
THRT&Throat&HL70070|1234567^Welby^M^J^Jr^Dr^MD|^^^^^206^4884144|||||F<CR>

This segment specifies that a report identified as MICR9700342 was processed on November 27, 2000, at 9:30 am. The report was a throat culture requested by Dr. M.J. Welby, Jr., MD, whose phone number is (206) 488-4144. This is the final result.

For Hepatitis A virus testing:

OBR|1||SER122145|78334^Hepatitis Panel, Measurement^L|||200003210830|||||BLDV&Blood
venous&HL70070|1234567^Welby^M^J^Jr^Dr^MD|^WPN^PH^^^206^4884144|||||F<CR>

This segment shows that a report identified by SER122145 for a hepatitis panel was conducted on blood and was processed on March 21, 2000, at 8:30 am. The battery was ordered by Dr. M.J. Welby, Jr., MD, whose phone number is (206) 488-4144. This is the final result.

For blood lead testing:

OBR|5||CH96779|3456543^Blood lead test^L|||200101210730|||||BLDC^Blood
capillary|3456789^Everett^C^Sr^Dr^MD|^WPN^PH^WPN^PH^206^488-0911|||||F<CR>

This segment shows that a report identified by CH96779 for a blood capillary lead test was processed on January 21, 2001, at 7:30 am. The test was ordered by Dr. C. Everett, MD, whose the phone number is (206) 488-0911. This is the final result.

OBR field definitions

Usage Notes: We do not anticipate that several OBR fields (OBR-5-12, 18-21, 23-24, 30, 32-43) will be used for electronic laboratory reporting purposes; therefore, we do not provide definitions for them here.

For electronic laboratory purposes, the Placer and Filler are defined as follows:

The placer is the person or service that requests (places order for) an observation battery, e.g., the physician, the practice, clinic, or ward service, that orders a lab test, X-ray, vital signs, etc. The meaning is synonymous with, and used interchangeably with, requestor. See *ORC-2-placer order number*, "Placer order number."

The filler is the person or service that produces the observations (fills the order) requested by the requestor. The word is synonymous with "producer" and includes diagnostic and clinical services and care providers who report observations about their patients. The clinical laboratory is a producer of lab test results (filler of a lab order), the nursing service is the producer of vital signs observations (the filler of orders to measure vital signs), and so on. See *ORC-3-filler order number*, Section 4.3.1.3, "Filler order

number.”

The daggered (+) items in the OBR attribute table above are known to the filler, not the placer. They are valued by the filler as needed when the OBR segment is returned as part of a report. The starred (*) fields are only relevant when an observation is associated with a specimen. These are completed by the placer when the placer obtains the specimen. They are completed by the filler when the filler obtains the specimen. *OBR-7-observation date/time* and *OBR-8-observation end date/time* (flagged with #) are the physiologically relevant times. In the case of an observation on a specimen, they represent the start and end of the specimen collection. In the case of an observation obtained directly from a subject (e.g., BP, Chest X-ray), they represent the start and end time of the observation.

OBR-1 Set ID (SI-4, Optional) 00237

Definition: This field identifies the sequence number of one of multiple OBR's under one PID. For the first order transmitted, the sequence number shall be 1; for the second order, it shall be 2; and so on. For example, the second OBR under a single PID would appear as:

|2|

OBR-2 Placer order number (EI-22, Conditional) 00216

Definition: This field identifies an order number uniquely among all orders from a particular ordering application. This field should not contain the accession number for a specimen. The first component is a string that identifies an individual order. A limit of fifteen (15) characters is suggested but not required. It is assigned by the placer (ordering application). The second through fourth components contain the application ID of the placing application in the same form as the HD data type.

EI data type components: <entity identifier (ST)> ^ <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

In our examples, we have not valued this field.

OBR-3 Filler order number (EI-22, Conditional) 00217

Definition: This field is the order number associated with the filling application. It is assigned by the order filler (receiving) application. This string must uniquely identify the order (as specified in the order detail segment) from other orders in a particular filling application (e.g., clinical laboratory). This uniqueness must persist over time. For laboratory based reporting, this field will be used to report the laboratory specimen accession number. This is the unique identifier that the laboratory uses to track specimens.

EI data type components: <entity identifier (ST)> ^ <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

Example: |MICR9700342|

The second through fourth components contain the filler application ID. The second component of the filler order number always identifies the actual filler of an order. A given institution or group of intercommunicating institutions should establish a list of applications that may be potential placers and fillers of orders and assign each a unique application ID. The application ID list becomes part of the institution's master dictionary, as documented in HL7's Chapter 8. Since third-party applications (those other than the placer and filler of an order) can send and receive ORM and ORR messages, the filler application ID in this field may not be the same as any other sending and receiving application on the network (as identified in the MSH segment). *ORC-3-filler order number* is the same as *OBR-3-filler order number*. If the filler order number is not present in the ORC, it must be present in the associated OBR. (This rule is the same for other identical fields in the ORC and OBR and promotes upward and ASTM compatibility.) This is particularly important when results are transmitted in an ORU message. In this case, the ORC is not required and the identifying filler order number must be present in the OBR

segments. The *filler order number* (OBR-3 or ORC-3) uniquely identifies an order and its associated observations.

Cancer Reporting Comment: Corresponds to NAACCR item number 2780. The combination of laboratory ID and filler order number will uniquely identify a case. If a filler order number may recycle with a single year period, a month identifier (01 through 12) should be prepended to it.

OBR-4 Universal service ID (CE-200, Required) 00238

Definition: This field is the identifier code for the requested observation/test/battery.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

An example valuing all of the CE data type components for a report of antimicrobial susceptibility would appear as:

[625-4^MICROORGANISM IDENTIFIED^LN^874634^ORGANISM^L]

No coding recommendation for laboratory-based reporting has been made for OBR-4 since the field describes the originally requested order (e.g., a hepatitis panel or antimicrobial susceptibility testing battery). The value of OBR-4 will be continued from the original order, since this is a required field, but the information in OBR-4 will not be used routinely. **The “informative field” for laboratory-based reporting is OBX-3, described below. OBX-3 should be used to provide an unambiguous, specific test name and OBX-5 should provide the result to the test.** Examples of messages for different laboratory-reportable findings are given in Appendix A.

An example for a report of a hepatitis panel would appear as:

[78334^Hepatitis Panel, Measurement^L]

Here the code is a user-defined “local” code, as indicated by the <L> in the third subcomponent. Note that the “Universal Service ID” is a code that often represents the battery or collection of tests that make up a routine laboratory panel. The individual results of the different components of the hepatitis panel are reported in the OBX segments described below. For most laboratory tests that are reportable to public health officials, the description of the test and result is sufficiently given in OBX and does not need repetition here. Information in OBR-4 will not be used routinely in public health reporting. An example of this is given in Appendix A for blood lead reporting.

OBR-7 Observation date/time (TS-26, Conditional) 00241

Definition: This field is the clinically relevant date/time of the observation. In the case of observations taken directly from a subject, it is the actual date and time the observation was obtained. In the case of a specimen-associated study, this field shall represent the date and time the specimen was collected or obtained. (This is a results-only field except when the placer or a third party has already drawn the specimen.) This field is conditionally required. When the OBR is transmitted as part of a report message, the field **must** be filled in. If it is transmitted as part of a request **and** a sample has been sent along as part of the request, this field must be filled in because this specimen time is the physiologically relevant date-time of the observation.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]]]

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

For example: |200011270930|

Cancer Reporting Comment: NAACCR item 7320.

OBR-13 Relevant clinical information (ST-300, Optional) 00247

Definition: This field contains any additional clinical information about the patient or specimen. This field is used to report the suspected diagnosis and clinical findings on requests for interpreted diagnostic studies. Examples include reporting the amount of inspired carbon dioxide for blood gasses, the point in the menstrual cycle for cervical pap tests, and other conditions that influence test interpretations. Relevant epidemiologically important information (e.g., day care center attendee, food handler, or nursing home patient) can be placed here; however there are no recommendations for specific use of this field for laboratory-based reporting. ICD codes used to support testing and reimbursement should be provided in OBR-31 (Reason for Study).

In our examples, we have not valued this field.

OBR 7.3.1.14 Specimen received date/time (TS-26, Conditional) 00248

Definition: For observations requiring a specimen, the specimen received date/time is the actual login time at the diagnostic service. This field must contain a value when the order is accompanied by a specimen, or when the observation required a specimen **and** the message is a report.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]]]

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

In our examples, we have not valued this field.

OBR-15 Specimen source (CM-300, Optional) 00249

Definition: This field identifies the site where the specimen should be obtained or where the service should be performed.

CM data type components:
<specimen source name or code (CE)> ^ <additives (TX)> ^ <freetext (TX)> ^ <body site (CE)> ^ <site modifier (CE)> ^ <collection method modifier code (CE)>

Subcomponents of specimen source name or code: <identifier (ST)> & <test (ST)> & <name of coding system (ST)> & <alternate identifier (ST)> & <alternate text (ST)> & <name of alternate coding system (ST)>

Subcomponents of body site: <identifier (ST)> & <test (ST)> & <name of coding system (ST)> & <alternate identifier (ST)> & <alternate text (ST)> & <name of alternate coding system (ST)>

Subcomponents of site modifier: <identifier (ST)> & <test (ST)> & <name of coding system (ST)> & <alternate identifier (ST)> & <alternate text (ST)> & <name of alternate coding system (ST)>

Subcomponents of collection method modifier code: <identifier (ST)> & <test (ST)> & <name of coding system (ST)> & <alternate identifier (ST)> & <alternate text (ST)> & <name of alternate coding system (ST)>

An example for an isolate from a blood culture is:

|BLDV&Blood venous&HL70070^^^T-D8400&Antecubital Region&SNM^LACF&Left Antecubital Fossa&HL70163|

where <BLDV> is the code, <Blood venous> is the text of the code, and HL7 0070 is the table from which the code and text were drawn.

When the coding system used is drawn from an HL7 table, the third subcomponent, name of coding system, is valued as HL7####. HL7 table 0070, "Specimen source code" is referenced in this example. Additional description can be given in the "body site" and "site modifier" fields using SNOMED® or HL7 codes. Here, <T-D8400&Antecubital Region&SNM> is the SNOMED® code for the body site, and <LACF&Left Antecubital Fossa> is the site modifier. The coding system used here is drawn from an HL7 table, so the name of coding system subcomponent is valued as HL7####. HL7 table 0163, *Administrative Site*, is referenced in this example.

An example for a specimen from a finger stick collection for blood lead testing where the specimen source is provided from an HL7 table of values:

[BLDC&Blood Capillary&HL70070]

An example for a stool specimen which yielded a reportable enteric organism is:

[STL&Stool=Fecal&HL70070]

It is strongly recommended that actual specimen sources be provided in OBR-15 and not surrogate descriptions such as "lavender-top" or "serum-separator tube".

Non-Coded Specimen Sources:

If coded text is not available, then the information is provided in the freetext field. The first two components would be blank, followed by the free-text specimen source.

A non-coded, free text specimen source in a field of a CE data type would appear as:

[^ Blood]

OBR-16 Ordering provider (XCN-80, Optional, Repeating) 00226

Definition: This field identifies the provider who ordered the test. Either the ID code or the name, or both, may be present. This is the same as *ORC-12-ordering provider*.

XCN data type components: <ID number (ST)> ^ <family name (ST)> & <last name prefix (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (IS)> ^ <source table (IS)> ^ <assigning authority (HD)> ^ <name type code (ID)> ^ <identifier check digit (ST)> ^ <code identifying the check digit scheme employed (ID)> ^ <identifier type code (IS)> ^ <assigning facility (HD)> ^ <name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility ID: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

For example: |1234567^Welby^M^J^Jr^Dr^MD|

Note: Ordering Provider Address appears in ORC-24. Public health agencies may request that the ordering provider's address also be provided so that health officials can contact providers to obtain additional information during public health investigations.

OBR-17 Order callback phone number (XTN-40, Optional, Repeating/2) 00250

Definition: This field is the telephone number for reporting a status or a result using the standard format with extension and/or beeper number when applicable.

XTN data type components: [NNN] [(999)]999-9999 [X999999] [B999999] [C any text] ^ <telecommunication use code (ID)> ^ <telecommunication equipment type (ID)> ^ <email address (ST)> ^ <country code (NM)> ^ <area/city code (NM)> ^ <phone number (NM)> ^ <extension (NM)> ^ <any text (ST)>

For example: |^WPN^PH^^^206^2770908^^call before 5:00 pm only~^ASN^PH^^^206^5620767|
or

| (206) 277-0908 |

OBR-22 Results rpt/status change - date/time (TS-26, Conditional) 00255

Definition: This field specifies the date/time results reported or status changed. This field is used to indicate the date and time that the results are composed into a report and released, or that a status, as defined in *ORC-5-order status*, is entered or changed.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]] []

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

In our examples, we have not valued this field.

OBR-25 Result status (ID-1, Conditional) 00258

Definition: This field is the status of results for this order. Refer to *HL7 table 0123 - Result status* for valid entries. Some public health agencies may want to have preliminary results for certain tests. The decision to transmit final versus preliminary results may vary from state to state.

The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. Examples of ID fields include *MSH-12-Version ID* and *PD1-12-Protection indicator*.

In our examples, we have not valued this field.

OBR-26 Parent result (CM-400, Optional) 00259

Definition: This field provides linkages to messages describing previously performed tests. This important information, together with the information in *OBR-29-parent* (the identifiers associated with the parent placer and filler), uniquely identifies the OBX segment from the previously performed test that is related to this order (description of OBX segment provided below). The value reported in this OBX segment in the parent result is the organism or chemical species about which this battery reports. For example, if the current battery (as designated in OBR-4) is an antimicrobial susceptibility test, the parent result in OBR-26 contains a result from a previously performed antimicrobial susceptibility test, which identified the organism on which the current susceptibility was run. HL7 specifies here the OBX-5 data will only show the text, or second component of the CE data type used in the previous message. However, for electronic laboratory reporting, all of the CE data type components of field OBX-5 from the previous parent message appear in this field of the present OBR, using subcomponent delimiters. This indirect linkage is preferred because the name of the organism in the parent result may undergo several preliminary values prior to finalization. *This is an exception to the HL7 description for this component.*

Refer to Appendix B for further discussion of parent/child relationships.

CM data type components: <OBX-3-observation identifier of parent result (CE)> ^ <OBX-4-sub-ID of parent result (ST)> ^ <part of OBX-5 observation result from parent (TX) >

Subcomponents of OBX-3-observation identifier or parent result: <identifier (ST)> & <test (ST)> & <name of coding system (ST)> & <alternate identifier (ST)> & <alternate text (ST)> & <name of alternate coding system (ST)>

An example is:

|600-7&Microorganism identified&LN^^L-25116&Streptococcus pneumoniae&SNM|

In this example, <600-7> is the code for a microbial culture that appeared in a previous OBX-3; <Microorganism identified> is the text describing the code; and <LN> represents the name of the coding system, LOINC®. The second component of this field is not used in this message and remains blank. The

third component has the code for *Streptococcus pneumoniae*, the text name of the organism, and the code representing the name of the coding system, SNOMED®. The third component was the OBX-5 that appeared in the parent result. The report of the antimicrobial susceptibility testing performed on the previously identified *Streptococcus pneumoniae* will be given in the OBX segment described below. Most laboratory findings that will be reported will not require the “parent result” field to be populated. A notable exception is the reporting of antimicrobial susceptibility testing results.

For laboratories that develop an HL7 message for laboratory-based reporting only and do not use HL7 within their institution, the parent result field should be used to report the name of the organism on which sensitivities were performed. OBR-26 would therefore appear as:

```
|^L-25116&Streptococcus pneumoniae&SNM|
```

HL7 2.3.1 states that OBR-26 should only be present when the parent result is identified by *OBR-29-parent number*; however, as discussed, the parent result may not always be present when a laboratory uses HL7 for transmission of public health information only. For this reason, OBR-26 should be populated with information in the absence of a parent number. This is a deviation from the HL7 2.3.1 specifications, but is necessary to interpret data required for laboratory-based reporting.

Below is an example of using 2 OBR's to accomplish this:

```
OBR|1||05099009500|630-4^Microorganism Identified^LN^008086^Urine Culture,
Comprehensive^L|||200002181000|||||200002220901||3^Ray^Tony^^^^MD|(336) 585-5000|||||F <CR>
OBX|1|CE|630-4^Microorganism Identified^LN^997191^Result 1^L|1|L-26201^Vibrio
cholerae^SNM^M520^Vibrio Cholerae^L|||A|||F|||20000222|^LABCORP BURLINGTON^CLIA|||<CR>
OBR|2||05099009500|^^^997191^RESULT 1^L|||200002181000|||||200002220901||
3^RAY^TONY^^^^MD|(336)585-5000|||||F|630-4&Microorganism
Identified&LN&997191&RSLT#1&L^1^Vibrio cholerae|||^05099009500|<CR>
```

OBR-27 Quantity/timing (TQ-400, Optional, Repeating) 00221

Definition: This field contains information about how many services to perform at one service time and how often the service times are repeated, and to establish the duration of the request. See Section 4.4 of the HL7 standard, Version 2.3.1, “Quantity/Timing (TQ) Definition.”

TQ data type components: <quantity (CQ)> ^ <interval (CM)> ^ <duration> ^ <start date/time (TS)> ^ <end date/time (TS)> ^ <priority (ID)> ^ <condition (ST)> ^ <text (TX)> ^ <conjunction (ID)> ^ <order sequencing> ^ <occurrence duration (CE)> ^ <total occurrences (NM)>

In our examples, we have not valued this field.

OBR-28 Result copies to (XCN-150, Optional, Repeating/5) 00260

Definition: This field is the people who are to receive copies of the results. By local convention, either the ID number or the name may be absent.

XCN data type components: <ID number (ST)> ^ <family name (ST)> & <last name prefix (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree(e.g., MD) (IS)> ^ <source table (IS)> ^ <assigning authority (HD)> ^ <name type code(ID)> ^ <identifier check digit (ST)> ^ <code identifying the check digit scheme employed (ID)> ^ <identifier type code (IS)> ^ <assigning facility (HD)> ^ <name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>
Subcomponents of assigning facility ID: <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

For example: |1234567^Welby^M^J^Jr^Dr^MD ~ 4567891^Parsons^Melvin^C^^Dr^MD|

OBR-29 Parent (CM-200, Optional) 00261

Definition: This field relates a child to its parent when a parent/child relationship exists. The field is optional; however, it is recommended that the field be sent if available for laboratory-based reporting. This field may be sent when a parent result is provided. Reporting of antimicrobial susceptibility data requires that the parent result be populated with the name of the organism for which testing was performed (OBR-26). See OBR-26 for further description.

CM data type components: <parent's placer order number (EI)> ^ <parent's filler order number (EI)>

Subcomponents of parent's placer order number: <entity identifier (ST)> & <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (IS)>

Subcomponents of parent's filler order number: <entity identifier (ST)> & < <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (IS)>

For example a parent result with no filler number would appear as:

|MB980167|

OBR-31 Reason for study (CE-300, Optional, Repeating) 00263

Definition: For public health reporting, ICD-9-CM codes used to support testing and reimbursement should be used here. This field can repeat to accommodate multiple diagnoses. Refer to website <http://www.cdc.gov/nchs/icd9.htm> for information on ICD-9-CM codes.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

The field would appear as:

OBR|.....||099.41^Other Venereal Diseases^I9C~483.1^Pneumonia due to other specified organism^I9C~V02.61^Carrier or Suspected carrier of infectious diseases ^I9C~070.41^VIRAL HEPATITIS^I9C~070.42^Viral Hepatitis^I9C|

OBR-44 Procedure code (CE-80, Optional) 00393

Definition: This field contains a unique identifier assigned to the procedure, if any, associated with the Universal Service ID reported in field 4. This field is a CE data type for compatibility with clinical and ancillary systems. This field will usually contain the HCFA Common Procedure Coding System (HCPCS) codes associated with the order. The HCPCS codes and modifiers of level II can be found at <http://www.hcfa.gov/stats/anhcpcdl.htm>.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

OBR-45 Procedure code modifier (CE-80, Optional, Repeating) 01316

Definition: This field contains the procedure code modifier to the procedure code reported in field 44, when applicable. Procedure code modifiers are defined by regulatory agencies such as HCFA and the AMA. Multiple modifiers may be reported. The HCPCS codes and modifiers of level II can be found at <http://www.hcfa.gov/stats/anhcpcdl.htm>.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^ <alternate
identifier (ST)> ^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.

(4-6) Three components analogous to 1-3 for the alternate or local coding system.

In our examples, we have not valued this field.

7.3 OBSERVATION REPORTING SEGMENTS

3.3.3 Observation/Result (OBX) Segment.

The OBX segment is used to transmit a single observation or observation fragment. It represents the smallest indivisible unit of a report. Its principal mission is to carry information about observations in report messages. While OBR gives general information about the order for the test and ORC gives information on all services that are requested, the OBX segment gives the specific, individual tests performed (OBX-3) and the specific results for each test (OBX-5). **Laboratory-based reporting to public health agencies focuses on OBX-3 and OBX-5 as the most informative elements of the message; thus, every effort should be made to make OBX-3 and OBX-5 as informative and unambiguous as possible.**

OBX Attributes

| SEQ | LEN | DT | OPT | PR/# | TBL# | ITEM# | ELEMENT NAME |
|-----|--------------------|-----|-----|----------------|------|-------|------------------------------|
| 1 | 4 | SI | O | | | 00569 | Set ID-OBX |
| 2 | 3 | ID | C | | 0125 | 00570 | Value type |
| 3 | 80 | CE | R | | | 00571 | Observation identifier* |
| 4 | 20 | ST | C | | | 00572 | Observation sub-ID |
| 5 | 65536 ¹ | ** | C | Y ² | | 00573 | Observation value* |
| 6 | 60 | CE | O | | | 00574 | Units |
| 7 | 60 | ST | O | | | 00575 | Reference ranges |
| 8 | 5 | ID | O | Y/5 | 0078 | 00576 | Abnormal flags |
| 9 | 5 | NM | O | | | 00577 | Probability |
| 10 | 2 | ID | O | Y | 0080 | 00578 | Nature of abnormal test |
| 11 | 1 | ID | R | | 0085 | 00579 | Observation result status |
| 12 | 26 | TS | O | | | 00580 | Date last Obs normal values |
| 13 | 20 | ST | O | | | 00581 | User defined access checks |
| 14 | 26 | TS | O | | | 00582 | Date/time of the observation |
| 15 | 60 | CE | O | | | 00583 | Producers ID |
| 16 | 80 | XCN | O | Y | | 00584 | Responsible observer |
| 17 | 60 | CE | O | Y | | 00936 | Observation method |

* For laboratory-based reporting, LOINC[®] is strongly recommended for OBX-3, and SNOMED[®] is strongly recommended for OBX-5 when results are coded and CE data types are used.

** The data type for OBX-5 can vary and is determined by OBX-2.

1 The length of the observation value field is variable, depending upon value type. See *OBX-2-value type*.

2 May repeat for multipart, single answer results with appropriate data types, e.g., CE, TX, and FT data types.

Examples:

For Hepatitis A Virus reporting:

OBX|3|CE|5182-1^Hepatitis A Virus IgM Serum Antibody EIA^LN||G-A200^Positive^SNM|||||F|||
200012161330|45D0480381|<CR>

This segment specifies that a third item in the report of a test for hepatitis A had a positive culture. This is the final result and was observed on December 16, 2000, at 1:30 p.m.

For Blood Lead reporting:

OBX|2|SN|10368-9^Quantitative Blood Lead ^LN|^45|: g/dL||||F|||20010121800|45D0480382|<CR>

This segment specifies that on January 21, 2001, at 8:00 a.m., the test for blood lead level resulted in 45 µg/dL. This is the final result.

For patient age and employment:

OBR|2|^^ Additional Patient Demographics| <CR>

OBX|1|NM|21612-7^reported patient age^LN||47|yr^year^ANSI+||<CR>

OBX|2|TX|11294-6^Current employment^LN||laboratory technician||<CR>

7.3.2.0 OBX field definitions

OBX 7.3.2.1 Set ID - observation simple (SI-4, Optional) 00569

Definition: This field contains the sequence number. There can be many OBX's per OBR. The set ID allows the receiver to maintain the relational aspects of the message.

SI data type is a non-negative integer in the form of an NM field. The uses of this data type are defined in the chapters defining the segments and messages in which it is used.

For example: |1|

This field can be used to track a number of results within one test panel. For example,

OBR|1||Hepatitis Panel||...

OBX|1|NM|LOINC Code for result 1||...

OBX|2|NM|LOINC Code for result 2||...

OBX 7.3.2.2 Value type (ID-3, Conditional) 00570

Definition: This field contains the data type that defines the format of the observation value in OBX-5. An explanation of possible data types is given in Appendix D.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

This field contains the data type of the observation value reported in OBX-5. For instance, if the value in OBX-2 is "CE", then the result reported in OBX-5 must be a coded element. When the value type is TX or FT, then the results in OBX-5 are bulk text. The choices allowed for the value type of an observation are listed in *HL7 Table 0125 - Value type*. All HL7 data types are valid in this field except CM, CQ, SI and ID. TX should not be used except to send large amounts of text. ST should be used to send short, and possibly encodable, text strings. For laboratory-based reporting, the CE and SN data types should be used whenever possible so that results can be interpreted easily.

When no standard format for the reported result is available, it is recommended to use: (see OBX-5 for additional explanation)

- 1) CE with subsequent NTE for non-standard coded results where the result is a text blob
- 2) TX for results that are truly free text

Observations that are usually reported as numbers will sometimes have the string (ST) data type because non-numeric characters are often reported as part of the result, e.g., "<0.06" to indicate the result was lower than detected by the present mechanism. In the example, "<0.06," "<" is a text symbol and the digit, "0.06" is considered a numeric value. However, this usage of the ST type should be discouraged since the SN (structured numeric) data type now accommodates such reporting. The SN data type is described under OBX-5 below.

OBX 7.3.2.3 Observation identifier (CE-590, Required) 00571

Definition: This field contains a unique identifier for the observation, or the thing being reported.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

For reporting of laboratory results, OBX-3 is the specific test that has been performed. Because OBX-3 is designated as a coded element, different coding schemes can be used to describe the test or observation in OBX-3. The description in OBX-3 essentially "points" to a master observation table that may provide other attributes of the observation to be used by the receiving system to process the message. For laboratory-based reporting, it is necessary for the observation to have a code in OBX-3 that can be easily interpreted by the public health application receiving the message. **For this reason, the laboratory-based reporting message strongly recommends that LOINC® (discussed below) be used as the coding system in OBX-3 for reporting tests that identify cases of illness that are reportable to public health agencies.** This decision was made to minimize any ambiguity in reporting test results. Thus, whenever possible, OBX-3 should be used as the informative element of the ORU, the focal point of the report. In other words, it is strongly recommended that OBX-3 be populated with as specific a LOINC® code as possible to prevent any misinterpretation of reported results.

Following this method, the first component of the field is the **Logical Observation Identifiers Names and Codes® (LOINC®)** code for a test which has been performed and which will have its individual results reported in the OBX segment described later. The second component is the name of the test as it appears in the LOINC® coding system. The third component is a code representing the name of the coding system that has the table where the codes and names of the tests can be found e.g., LN is the code for LOINC®. Coding systems other than LOINC®, such as SNOMED® (the Systematized Nomenclature of Human and Veterinary Medicine) or local codes can be used for OBR-4. The codes for identifying coding systems are found in the HL7 Standard Version 2.3.1 at section 7.1.4. Codes that we anticipate for use in public health reporting are shown in Appendix C, *User Table 0396*.

LOINC® (Logical Observation Identifier Names and Codes) is a collection of tables which provide sets of universal names and ID codes for identifying laboratory and clinical test results. The LOINC® codes are not intended to transmit all possible information about a test. They are only intended to *identify* the test result. The level of detail in the LOINC® definitions was intended to distinguish tests that are usually distinguished as separate test results within the master file of existing laboratory systems. For laboratory-based reporting of public health information, a subset of LOINC® codes have been selected and will be made available at the CDC web site. General information about LOINC® codes can be found at: <http://www.regenstrief.org>

LOINC® codes are not recommended for pathology reports for cancer registries.

Some reports currently cannot be described with OBX-3 alone, for instance, the initial identification of an organism may have an OBX-3 which is general, such as “Microbial Culture.” In this setting, OBX-5 would identify the specific organism that has triggered a report to be sent to a public health agency, such as “*Neisseria meningitidis*”. Another example would be reporting of antimicrobial sensitivity results where it is necessary to use OBR-26 (Parent Result) which identifies the organism on which testing was performed. However, it is still strongly recommended to use LOINC® codes for OBX-3 even if the chosen term is not organism-specific.

An example for a Hepatitis A Virus result is:

[5182-1^Hepatitis A Virus IgM Serum Antibody EIA^LN]

where <5182-1> is the identifier from the LOINC® table for the Enzyme Immunoassay for Hepatitis A Virus IgM antibody, <Hepatitis A Virus IgM Serum Antibody EIA> is the text name as it appears in the table, and <LN> is the name of the coding system. Any further description of the testing may appear in *OBX-17 Observation method* but is not required. For antimicrobial susceptibility testing, the antimicrobial test for which minimum inhibitory concentrations (MICs) have been performed may appear as:

[524-9^Vancomycin Susceptibility MIC^LN]

where <524-9> is the identifier from the LOINC® table for the vancomycin MIC test, <Vancomycin Susceptibility MIC> is the text name as it appears in the table, and <LN> represents the name of the coding system. Identification of the method as broth dilution may appear in *OBX-17 Observation method* using CDC method codes described below, but is not required. Refer to <http://www.phppo.cdc.gov/clia/testcat.asp> for the CDC Test Complexity Files. These codes represent specific tests which can be used to further describe the method of test performed in OBX-17.

An example for coding a report of lead level from a capillary blood specimen:

[10368-9^Quantitative Blood Lead^LN]

For reporting an isolate of *Neisseria meningitidis*, OBX-3 would have the test which yielded the isolate. The result of the culture (i.e., the growth of *Neisseria meningitidis*) would be reported in OBX-5 below. OBX-3 would appear as:

[600-7^Microorganism identified, Blood Culture^LN]

Cancer Reporting Comments: A locally defined coding scheme represents the pathology report. See NAACCR *Table C0001- Text Classification Grouping*.

For example:

[CH^Clinical History^L]

For public health reporting, patient age is sometimes needed when the birth date may not be available. The PID segment in HL7 Version 2.3.1 has only a field for date of birth, not for patient age. Many applications compute patient age based on birth date. In the absence of birth date, patient age may be recorded within an ORU message in an additional OBR/OBX combination of segments. This usage is shown in the example of a complete ORU message in Appendix A. The suggested data type for patient age is NM, which is recorded in OBX-2. The LOINC® code for age is represented in OBX-3 and actual age is represented in OBX-5. Patient age can be ‘reported age’ at the time of diagnosis (LOINC® code 21612-7) or ‘estimated age’ (LOINC® code 21611-9). For situations where birth date is unknown, age may be estimated by a third party on the basis of physical evidence.

A similar method may be used to record employment information that is not otherwise available in an ORU message. Several different LOINC[®] codes identifying History of Occupation, Usual Occupation, Current Employment, Age at Diagnosis, Industry etc., are available. The appropriate LOINC[®] code should be represented when sending patient employment information. This usage is shown in the example of a complete ORU message on page A-1 of Appendix A.

OBX 7.3.2.3.1 Observation sub-ID (ST-20, Conditional) 00572

Definition: This field is used to distinguish between multiple OBX segments with the same observation ID organized under one OBR. For example, a blood culture may have three different organisms growing or a chest X-ray report might include three separate diagnostic impressions. The standard requires three OBX segments, one for each impression. By recording 1 in the Sub-ID of the first of these OBX segments, 2 in the second, and 3 in the third, each OBX segment can be uniquely identified for editing or replacement. The sub-identifier can be further extended by adding decimals (e.g., 2.1, 2.2). It is strongly recommended that numeric values be used for laboratory-based reporting so that receiving applications can maintain easily the relational quality of the data.

The sub-identifier is also used to group related components in reports such as surgical pathology. It is traditional for surgical pathology reports to include all the tissues taken from one surgical procedure in one report. Consider, for example, a single surgical pathology report that describes the examination of gallbladder and appendix tissue. This report would be transmitted roughly as shown below.

Example of sub-identifier usage:

```
OBR|1|||88304&Surg Path Report...
OBX|1|CE|88304&ANT|1|T57000^GallBladder^SNM...
OBX|2|TX|88304&GDT|1|This is a normal gallbladder...
    OBX|3|TX|88304&MDT|1|Microscopic exam shows histologically normal gallbladder...
OBX|4|CE|88304&IMP|1|M-00100^NML^SNM...
OBX|5|CE|88304&ANT|2|T66000^Appendix^SNM...
OBX|6|TX|88304&GDT|2|This is a red, inflamed, swollen, boggy appendix ...
OBX|7|TX|88304&MDT|2|Infiltration with many PMN's – Indicating inflammatory change...
OBX|8|CE|88304&IMP|2|M-40000^InflammationNOS^SNM...
```

The example above has two segments for each component of the report, one for each of the two tissues, the gall bladder and the appendix. Thus, there are two |88304&ANT| segments; there are two |88304&GDT| segments, and there are two |88304&MDT| segments. Segments that apply to the gallbladder all have the sub-identifier 1. Segments that apply to the appendix all have sub-identifier 2. The use of the sub ID to distinguish repeating OBXs for the same observation ID is really a special case of using the sub ID to group related subdivisions of information within the overall observation category. Its use must be carefully structured to avoid introducing ambiguities.

Refer to the Pointers section of Appendix B for an explanation of how to use OBR-26 to link information reported in OBX's with the parent results from OBX-3, 4, and 5.

OBX 7.3.2.5 Observation value (*Data type varies, User-assigned, Conditional, Repeating) 00573

Definition: The results of the test appear here. **For laboratory-based reporting, SNOMED[®] is strongly recommended for OBX-5 whenever the CE data type is indicated in OBX-2.**

If CE appears in OBX-2, it is assumed that the result in OBX-5 is coded using SNOMED[®]. For numeric results, the SN data type is preferred for OBX-2, and thus, SNOMED[®] is not required. OBX-5 may have either the SNOMED[®] code for “positive” or the SNOMED[®]-specific names of organisms identified in the tests described in OBX-3. It is strongly recommended that the SNOMED[®] code be used for the modifiers “positive,” “negative,” and “indeterminate.” Other modifiers should be avoided such as “limited findings,” “insufficient specimen,” “patient not at bedside,” or “see technician.” Further information on SNOMED[®] can be found at the SNOMED[®] Internet site at <http://www.snomed.org>.

For reporting to public health jurisdictions, the Centers for Disease Control and Prevention (CDC) will authorize and distribute a subset of SNOMED® codes to third party reporting entities. An authorization to use these codes without charge can be obtained from CDC by contacting the Integrated Health Information Systems Office at 404-639-7438.

For example, when a Hepatitis A Virus IgM antibody has been identified in a reference laboratory, a report for a public health agency is triggered. The OBX-3 would contain the code for the Hepatitis A IgM test and OBX-5 would indicate that the test was positive. The OBX segment would appear as:

OBX|1|CE|5182-1^Hepatitis A Virus IgM Serum Antibody EIA^LN||G-A200^Positive^SNM|...

where OBX-3 uses a LOINC® code and OBX-5 uses a SNOMED® code.

For antimicrobial susceptibility testing, the OBX segment would appear as:

OBX|1|SN|7059-9^Vancomycin Susceptibility, Gradient Strip^LN||<^1|...

where OBX-3 uses a LOINC® code and OBX-5 has a numeric value. The value type listed in OBX-2 determines the structure of the reported result here (i.e., SN) and thus, SNOMED® is not recommended in this example. The SN data type has the following structure:

<comparator> ^ <num1(NM)> ^ <separator or suffix> ^ <num2 (NM)>

Some examples of the SN representation are:

| | |
|------------|---|
| >^100 | Greater than 100 |
| ^100^-^200 | equal to range of 100 through 200 |
| ^1^:^228 | ratio of 1 to 128 (e.g., the results of a serological test) |
| ^2^+ | categorical response (e.g., an interpretation of occult blood positivity) |

For results of a culture that yielded *Neisseria meningitides*, OBX-2 would be listed as a coded element (CE) and OBX-5 would appear as:

|L-22202^Neisseria meningitidis^SNM|

It is strongly recommended that the data types CE and SN be used whenever possible to minimize ambiguity in reporting. In those cases where laboratories have a local code which represents a canned comment, the local code can be placed in OBX5 as a CE data type, and the canned comment can be placed in an NTE directly following the OBX segment. For example:

OBX|1|CE|600-7^Microorganism identified, Blood Culture^LN||^^^SALMPRES^^L|...

NTE|1|L|Numerous colonies of Salmonella were present on culture. A sub-

NTE|2|L|culture was inoculated and sent for further species identification.

For true free text results, i.e., those for which no local code is available, the TX data type should be used. For example:

OBX|1|TX|600-7^Microorganism identified, Blood Culture^LN|1|Many colonies of Neisseria|...

OBX|2|TX|600-7^Microorganism identified, Blood Culture^LN|1|meningitidis were found on|...

OBX|3|TX|600-7^Microorganism identified, Blood Culture^LN|1|organism-specific culture|...

OBX|1|TX|600-7^Microorganism identified, Blood Culture^LN|1|media|...

An example of a complete OBX segment coded for reported age of the patient at the time of diagnosis would appear as:

OBX|1|NM|21612-7^reported patient age^LOINC||47|yr^year^ANSI+||<CR>

Similarly, a complete OBX segment for patient employment would appear as:

OBX|2|TX|11294-6^Current employment^LN||coal miner||||F<CR>

Cancer Reporting Comments: This is the field and components that will contain the text or SNOMED codes for the following NAACCR item numbers, 7340, 7350, 7360, 7370, 7380, 7390, 7400, 7410, 7420, 7430, 7440, 7430, 7460, 7470.

OBX 7.3.2.6 Units (CE-60, Optional) 00574

Definition: This field contains the units for the observation value in OBX-5. The default value is ISO+abbreviation. The ISO+ and ANSI+ customary units are shown in Section 7.3.2.6.2 of the HL7 Version 2.3.1 standard.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

For example: |µg/mL^microgram/milliliter^ISO+|

The units for age would be yr, wk, mo, d (in ANSI+ standards representation) in OBX-6.

For example:

|mo^month^ANSI+|

OBX 7.3.2.7 References range (ST-60, Optional) 00575

Definition: When the observation quantifies the amount of a toxic substance, then the upper limit of the range identifies the toxic limit. If the observation quantifies a drug, the lower limits identify the lower therapeutic bounds and the upper limits represent the upper therapeutic bounds above which toxic side effects are common.

If numeric, the values of this field may report several values in one of the following three formats:

| | |
|-------------------------|--|
| lower limit-upper limit | when both lower and upper limits are defined, e.g., for potassium "3.5 - 4.5" |
| > lower limit | if no upper limit, e.g., ">10" |
| < upper limit | if no lower limit, e.g., "<15" |

If alphabetical, the normal value may be reported in OBX-7. For instance, the normal result on an assay may be "pink".

In our examples, we have not valued this field.

OBX 7.3.2.8 Abnormal flags (ID-5, Optional, Repeating) 00576

Definition: This field contains the microbiology sensitivity interpretations. Refer to *HL7 Table 0078 - Abnormal flags* for valid entries.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

Abnormal flags should be used for reporting microbiology sensitivity data. Abnormal flags for antimicrobial sensitivity reporting should conform to the recommendations of National Committee of Clinical Laboratory Standards (NCCLS, <http://www.nccls.org>). For most reported findings, the allowable values are S, I, or R, and should be provided in addition to the numeric value in OBX-5. For ELR, when findings other than susceptibility results are sent, the abnormal flag should be valued (e.g., "H", "N", or "A") to distinguish between tests that are interpreted as normal and those that are interpreted as abnormal.

In our examples, we have not valued this field.

OBX-9 Probability (NM-5, Optional) 00577

Definition: This field contains the probability of a result being true for results with categorical values. It mainly applies to discrete coded results. It is a decimal number represented as an ASCII string that must be between 0 and 1, inclusive.

In our examples, we have not valued this field.

OBX 7.3.2.10 Nature of abnormal test (ID-2, Optional, Repeating) 00578

Definition: This field contains the nature of the abnormal test.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

OBX-11 Observation result status (ID-1, Required) 00579

Definition: This field contains the observation result status. Refer to *HL7 Table 0085 - Observation result status codes interpretation* for valid values. This field reflects the current completion status of the results for data contained in the *OBX-5-observation value* field. It is a required field. Previous versions of HL7 stated this implicitly by defining a default value of "F" indicating that the result has been verified to be correct and final.

The value of an ID data type follows the formatting rules for an ST data type except that it is drawn from a table of HL7 legal values.

In our examples, we have not valued this field.

Cancer Reporting Comment: Corresponds to NAACCR item number 7330.

OBX-12 Date last observation normal values (TS-26, Optional) 00580

Definition: This field contains the changes in the observation methods that would make values obtained from the old method not comparable with those obtained from the new method. Null if there are no normals or units. If present, a change in this date compared to date-time recorded, the receiving system's test dictionary should trigger a manual review of the results to determine whether the new observation ID should be assigned a new ID in the local system to distinguish the new results from the old.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]]]

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year,

but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

In our examples, we have not valued this field.

OBX-13 User defined access checks (ST-20, Optional) 00581

Definition: This field permits the producer to record results-dependent codes for classifying the observation at the receiving system. For ELR, this field should be populated with the reportable condition if available.

For example: |DE-35100^Viral hepatitis, type A (disorder) ^SNM|
or

A reportable condition category: |DE-01600^Sexually transmitted infectious disease^SNM|

OBX-14 Date-time of the observation (TS-26, Optional) 00582

Definition: Records the time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation. This field is required in two circumstances. The first is when the observations (OBX's) reported beneath one report header (OBR) have different dates, for instance when one measurement within a battery may have a different time/date than another measurement.

Time stamp (TS) data type must be in the format:
YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]]]

The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

For example: |200012161330|

OBX-15 Producer's ID (CE-60, Optional) 00583

Definition: Contains a unique identifier of the responsible producing service. It should be included for all ELR messages that are reported to public health agencies. For most reports the CLIA identifier here will be identical to the CLIA identifier listed as the assigning facility in PID-3 (Patient ID, Internal). When the test results are produced at outside laboratories, the CLIA identifier for the laboratory that performed the test should appear here and will be different from the CLIA identifier listed as the assigning facility in PID-3.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

For example: |01D0301145^MediLabCo^CLIA|

or

|01D0301145|

OBX-16 Responsible observer (XCN-80, Optional, Repeating) 00584

Definition: This field contains the identifier of the individual directly responsible for the observation (the person who either performed or verified it).

Components of the XCN data type: <ID number (ST)>^<family name (ST)>^<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)>

Subcomponents of assigning authority: <namespace ID (IS)>^<universal ID (ST)> & <universal ID type (ID)>

Subcomponents of assigning facility: <namespace ID (IS)>^<universal ID (ST)> & <universal ID type (ID)>

In our examples, we have not valued this field.

OBX-17 Observation method (CE-60, Optional, Repeating) 00936

Definition: This field is used to transmit the method or procedure by which an observation was obtained when the sending system wishes to distinguish among one measurement obtained by different methods and the distinction is not implicit in the test ID.

The CE data type transmits codes and the text associated with the code. This type has six components arranged in two groups as follows:

<identifier (ST)>^<text (ST)>^<name of coding system (ST)>^
<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)>

CE data type components are defined as follows:

- (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.
- (2) Text (ST). Name or description of the item in question.
- (3) Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item.
- (4-6) Three components analogous to 1-3 for the alternate or local coding system.

The Centers for Disease Control and Prevention (CDC) Method Code (CDCM) can be used in OBX-17 to further describe tests identified in OBX-3. These codes can be obtained from the Public Health Practice Program Office, Centers for Disease Control and Prevention, 4770 Buford Highway, Atlanta, GA, 30421, or at these internet sites:

ftp://ftp.cdc.gov/pub/laboratory_info/CLIA

<http://www.phppo.cdc.gov/clia/testcat.asp>

Cancer Reporting Comment: NAACCR currently specifies the use of a locally-defined classification for additional information to indicate how a particular observation has been confirmed.

3.3.4 NOTES AND COMMENTS (NTE) SEGMENT

The NTE segment is a common format for sending notes and comments. This optional, repeating segment may be inserted after any of the OBX segments in the ORU message. The NTE segment applies to the information in the segment that immediately precedes it, i.e., the observation reported in the preceding OBX segment. The NTE segment is not further defined by HL7.

| NTE attributes | | | | | | | |
|----------------|-----|----|-----|------|------|--------|-------------------|
| SEQ | LEN | DT | OPT | RP/# | TBL# | ITEM # | ELEMENT NAME |
| 1 | 4 | SI | O | Y | 0105 | 00096 | Set ID – NTE |
| 2 | 8 | ID | O | | | 00097 | Source of Comment |
| 3 | 64k | FT | O | | | 00098 | Comment |
| 4 | 60 | CE | O | | | 01318 | Comment Type |

NTE field definitions

NTE-1 Set ID (SI-4, Optional) 00096

Definition: This field may be used where multiple NTE segments are included in a message. Their numbering must be described in the application message definition.

NTE-2 Source of comment (ID-8, Optional) 00097

Definition: This field is used when source of comment must be identified. HL7-defined *table 0105 Source of Comment* may be extended locally during implementation.

NTE-3 Comment (FT-64k, Optional) 00098

Definition: This field contains the comment contained in the segment.

NTE-4 Comment type (CE-60, Optional) 01318

Definition: This field contains a value to identify the type of comment text being sent in the specific comment record. Allowable values are given in *User-defined table 0364 – Comment Type*.

Note: NTE-2 already identifies one source of comment (e.g., ancillary, placer, other). However, some applications need to support other types of comment text (e.g., instructions, reason, remarks, etc.). A separate NTE segment can be used for each type of comment (e.g., instructions are on one NTE and remarks on another NTE). If the amount of text for a specific type of comment exceeds the NTE segment maximum, the NTE-1 Set ID field can be valued to group related NTE's together when applicable. For example, all NTE's with a Set ID valued to 1 are grouped as a logical grouping of text.

4 HL7 BATCH PROTOCOL

There are instances when it is convenient to transfer a batch of HL7 messages for reporting to public health agencies. Such a batch could be sent online using a common FTP protocol, or offline via tape or diskette.

4.1 HL7 batch file structure

A batch of HL7 messages may be sent online using a common file transfer protocol or offline via tape or diskette. If needed, a group of batches may be sent using the file header and trailer segments. The FHS and FTS are optional and need not be sent if the transaction is one batch of records. The file/batch syntax follows:

| | |
|---------|-----------------------------|
| [FHS] | (file header segment) |
| { [BHS] | (batch header segment) |
| { [MSH | (zero or more HL7 messages) |
| PID | |
| OBR | |
| | |
|] } | |
| [BTS] | (batch trailer segment) |
| } | |
| [FTS] | (file trailer segment) |

The sequence numbering protocol has a natural application in batch transfers. See the discussion of batch acknowledgments that follows. A batch for reporting to public health agencies will consist of a single type of message (i.e., ORU). Batches should usually contain at least one HL7 message. There are only two cases in which an HL7 batch file may contain zero HL7 messages:

- a) a batch containing zero HL7 messages may be sent to meet a requirement for periodic submission of batches when there are no messages to send,
- b) a batch containing zero negative acknowledgment messages may be sent to indicate that all the HL7 messages contained in the batch being acknowledged are implicitly acknowledged. The attribute tables and field definitions for batch-related segments are given below.

Related Segments and Data Usage

The following segments relate to the HL7 Batch Protocol: 1) BHS - Batch Header, 2) BTS -Batch Trailer, 3) FHS - File Header, and 4) FTS - File Trailer. The BTS segment contains a field, *BTS-3-batch totals*, which may have one or more totals drawn from fields within the individual messages. The method for computing such totals resides with the sending facility.

4.2 Acknowledging Batches

In general, the utility of sending batches of data is that the data is accepted all at once, with errors processed on an exception basis. However, it is a permissible application of HL7 to acknowledge all messages. Several options for acknowledgment are given in the HL7 2.3.1 standard document and are not addressed further here.

4.3 Batch Segments

4.3.1 File Header (FHS) Segment

The FHS segment is used to head a file (group of batches). Ideally, a single sending facility, for instance a regional laboratory for a hospital consortium, could send a group of batches of reportable findings from separate laboratories within the consortium. In this setting, each separate BHS would have a different CLIA identifier. The FHS would have a different CLIA number as well, or would have the same CLIA number as the one batch that was performed at the sending facility. This complexity of message processing is not common yet, either at laboratories or public health agencies. The description of batch reporting in this guide demonstrates reporting from a single facility and thus the CLIA number is the same for MSH, BHS, and FHS.

FHS Attributes

| SEQ | LEN | DT | R/O | RP# | TBL# | ITEM# | ELEMENT NAME |
|-----|-----|----|-----|-----|------|-------|----------------------------|
| 1 | 1 | ST | R | | | 00067 | File field separator |
| 2 | 4 | ST | R | | | 00068 | File encoding characters |
| 3 | 15 | ST | O | | | 00069 | File sending application |
| 4 | 20 | ST | O | | | 00070 | File sending facility |
| 5 | 15 | ST | O | | | 00071 | File receiving application |
| 6 | 20 | ST | O | | | 00072 | File receiving facility |
| 7 | 26 | TS | O | | | 00073 | File creation date/time |
| 8 | 40 | ST | O | | | 00074 | File security |
| 9 | 20 | ST | O | | | 00075 | File name/ID/type |
| 10 | 80 | ST | O | | | 00076 | File comment |
| 11 | 20 | ST | O | | | 00077 | File control ID |
| 12 | 20 | ST | O | | | 00078 | Reference file control ID |

File header field definitions

Usage notes: FHS fields 1-8 have the same definitions as the corresponding fields in the MSH segment and are not repeated here. FHS segment was not shown in the examples, but the field definitions are provided below for reference.

FHS-9 File name/ID (ST-20, Optional) 00075

Definition: This field can be used by the application processing file. Its use is not further specified.

FHS-10 File header comment (ST-80, Optional) 00076

Definition: This field contains the free text field, the use of which is not further specified.

FHS-11 File control ID (ST-20, Optional) 00077

Definition: This field is used to identify a particular file uniquely. Use Timestamp plus a counter similar to MSH-10 to uniquely identify the file here. It can be echoed back in *FHS-12-reference file control ID*.

FHS-12 Reference file control ID (ST-20, Optional) 00078

Definition: This field contains the value of *FHS-11-file control ID* when this file was originally transmitted. Not present if this file is being transmitted for the first time.

4.3.2 File Trailer (FTS)

Used to define the end of a file.

FTS Attributes

| SEQ | LEN | DT | R/O | RP# | TBL# | ITEM# | ELEMENT NAME |
|-----|-----|----|-----|-----|------|-------|----------------------|
| 1 | 10 | NM | O | | | 00079 | File batch count |
| 2 | 80 | ST | O | | | 00080 | File trailer comment |

FTS field definitions

Usage notes: FTS segment was not used in the given examples, but the field definitions are provided below for reference.

FTS-1 File batch count (NM-10, Optional) 00079

Definition: This field contains the number of batches contained in the file.

FTS-2 File trailer comment (ST-80, Optional) 00080

Definition: The use of this free text field is not further defined in the HL7 protocol.

4.3.3 Batch Header (BHS) Segment

Used to define the start of a batch.

BHS Attributes

| SEQ | LEN | DT | R/O | RP# | TBL# | ITEM# | ELEMENT NAME |
|-----|-----|----|-----|-----|------|-------|-----------------------------|
| 1 | 1 | ST | R | | | 00081 | Batch field separator |
| 2 | 3 | ST | R | | | 00082 | Batch encoding characters |
| 3 | 15 | ST | O | | | 00083 | Batch sending application |
| 4 | 20 | ST | O | | | 00084 | Batch sending facility |
| 5 | 15 | ST | O | | | 00085 | Batch receiving application |
| 6 | 20 | ST | O | | | 00086 | Batch receiving facility |
| 7 | 26 | TS | O | | | 00087 | Batch creation date/time |
| 8 | 40 | ST | O | | | 00088 | Batch security |
| 9 | 20 | ST | O | | | 00089 | Batch name/ID/type |
| 10 | 80 | ST | O | | | 00090 | Batch comment |
| 11 | 20 | ST | O | | | 00091 | Batch control ID |
| 12 | 20 | ST | O | | | 00092 | Reference batch control ID |

Batch Header field definitions

Usage notes: BHS fields 1-8 have the same definitions as the corresponding fields in the MSH segment and are not repeated here. BHS segment was not shown in the examples, but the field definitions are provided below for reference.

BHS-9 Batch name/ID/type (ST-20, Optional) 00089

Definition: This field can be used by the application processing the batch. It can have extra components if needed.

BHS-10 Batch comment (ST-80, Optional) 00090

Definition: This field is a comment field that is not further defined in the HL7 protocol.

BHS-11 Batch control ID (ST-20, Optional) 00091

Definition: This field is used to uniquely identify a particular batch. Use Timestamp and a counter similar to MSH-10 to uniquely identify the batch. It can be echoed back in BHS-12-reference batch control ID if an answering batch is needed.

BHS-12 Batch reference batch control ID (ST-20, Optional) 00092

Definition: This field contains the value of BHS-11-batch control ID when this batch was originally transmitted. This field is not valued if this batch is being sent for the first time.

4.3.4 Batch Trailer (BTS) Segment

Used to define the end of a batch.

BTS Attributes

| SEQ | LEN | DT | R/O | RP# | TBL# | ITEM# | ELEMENT NAME |
|-----|-----|----|-----|-----|------|-------|---------------------|
| 1 | 10 | ST | O | | | 00093 | Batch message count |
| 2 | 80 | ST | O | | | 00094 | Batch comment |
| 3 | 100 | NM | O | Y | | 00095 | Batch totals |

BTS field definitions

Usage notes: BTS segment was not shown in the examples, but the field definitions are provided below for reference.

BTS-1 Batch message count (ST-10, Optional) 00093

Definition: This field contains the count of the individual messages contained within the batch.

BTS-2 Batch comment (ST-80, Optional) 00094

Definition: This field is a comment field that is not further defined in the HL7 protocol.

BTS-3 Batch totals (NM-100, Optional, Repeating) 00095

Definition: This field contains the batch total. The numbers of messages should be counted and represented here to allow recipients to have simple batch level auditing.

5 APPENDIX A. HL7 Examples of Report Messages

Example messages for laboratory-based reporting of findings of public health importance.

Example 1: Hepatitis A Virus

```
MSH|^~\&||MediLabCo-Seattle^45D0470381^CLIA|NEDSS|WA-DOH|199605171830||ORU^R01|
199605170123|P|2.3.1 <CR>
PID|||10543^^^^^Columbia Valley Memorial Hospital&01D0355944&CLIA|95101100001^^^^^
MediLabCo- Seattle&45D0470381&CLIA||Doe^John^Q^Jr|Clemmons||M||W| 2166 Wells Dr
^AptB^Seattle^WA^98109^USA^^King||^PRN^PH^^206^6793240||M||423523049|
DOEJ34556057^WA^19970801||N <CR>
NK1|1|Doe^Jane^Lee^^^^L|SPO^spouse^HL70063|2166 Wells Dr^Apt B^Seattle^WA^98109^
USA^M^^King^^A|^PRN^PH^^206^6793240|<CR>
ORC|CN|||||||||MediLabCo - Northwest Pathology Ltd., Central Campus^^45D0470381^^
CLIA|2217 Rainier Way^^Renton^WA^98002^USA^M^^Black Hawk^^A|
^WPN^PH^helpline@medilab.com^^206^5549097 |115 Pike Plaza^Suite
2100^Seattle^WA^98122^USA^^^^^A|<CR>
OBR|1||SER122145|78334^Hepatitis Panel, Measurement^L||199603210830 ||||||BLDV|
^Welby^M^J^Jr^Dr^MD|^WPN^PH^^206^4884144||||||F <CR>
OBX||CE|5182-1^Hepatitis A Virus, Serum Antibody EIA^LN||G-A200^Positive^SNM|||||F||
|199603241500|45D0480381 <CR>
OBR|2||^Additional patient demographics|<CR>
OBX|1|NM|21612-7^reported patient age^LN||47|yr^year^ANSI+||<CR>
OBX|2|TX|11294-6^Current employment^LN||food handler||<CR>
```

Example 2: Lead

```
MSH|^~\&||MediLabCo-Seattle^45D0470381^CLIA|NEDSS|WA-DOH|200112171830|
|ORU^R01|200112170897|P|2.3.1 <CR>
PID|||10543^^^^^Columbia Valley Memorial Hospital&01D0355944&CLIA|95101100001^^^^^
MediLabCo-Seattle&45D0470381&CLIA||Doe^Jared^Q^Jr|Clemmons|19900602|M||W|
2166WellsDr^AptB^Seattle^WA^98109^USA^^King||^PRN^PH^^206^6793240||M||423523
049||N <CR>
NK1|1|Doe^Jane^Lee^^^^L|MTH^Mother^HL70063|2166 Wells Dr^Apt B^Seattle^WA^98109^
USA^M^^King^^A|^PRN^PH^^206^6793240|<CR>
ORC|CN|||||||||MediLabCo - Northwest Pathology Ltd., Central Campus^^45D0470381^^CLIA|
2217 Rainier Way^^Renton^WA^98002^USA^M^^Black Hawk^^A|
^WPN^PH^helpline@medilab.com^^206^5549097|115 Pike Plaza^Suite 2100^Seattle^WA
^98122^USA^^^^^A|<CR>
OBR|1||CHEM9700122|3456543^Blood lead test^L||20011270930|||||BLDC^Blood capillary
|^Welby^M^J^Jr^Dr^MD|^WPN^PH^^206^4884144||||||F <CR>
OBX||SN|10368-9^Quantitative Blood Lead^LN||^45|µg/dL||||F||200111300800|
45D0480381<CR>
```

6 APPENDIX B: Code Tables

NOTE: Where only selected values are listed for HL7 tables, please refer to the HL7 Standard for complete listings. In this appendix, values are selected from standard codes where available. Values that are assigned by NIP are italicized.

User-defined Table 0001 - Sex [values suggested by HL7] (use in PID-8, NK1-15)

| Value | Description |
|-------|-----------------------------|
| F | Female |
| M | Male |
| H | Hermaphrodite, Undetermined |
| T | Transsexual |
| O | Other |
| U | Unknown |

User-defined Table 0002 – Marital Status (use in PID-16)

| Value | Description |
|-------|-------------|
| A | Separated |
| D | Divorced |
| M | Married |
| S | Single |
| W | Widowed |

HL7-defined Table 0003 - Event type [only selected values listed] (use in MSH-9, second component)

| Value | Description |
|-------|--|
| A28 | ADT/ACK - Add person information |
| A29 | ADT/ACK - Delete person information |
| A30 | ADT/ACK - Merge person information |
| A31 | ADT/ACK - Update person information |
| V01 | VXQ - Query for vaccination record |
| V02 | VXX - Response to vaccination query returning multiple PID matches |
| V03 | VXR - Vaccination record response |
| V04 | VXU - Unsolicited vaccination record update |
| R01 | ORU – Unsolicited observation results |

User-defined Table 0004 - Patient class [values suggested by HL7] (use in PV1-2)

| Value | Description |
|-------|-------------------|
| E | Emergency |
| I | Inpatient |
| O | Outpatient |
| P | Pre-admit |
| R | Recurring Patient |
| B | Obstetrics |

User-defined Table 0005 - Race [These values are compliant with OMB directive for combined format] (use in PID-10, NK1-35)

| Value | Description |
|-------|---|
| I | American Indian or Alaska Native |
| A | Asian |
| P | Native Hawaiian or Other Pacific Islander |
| B | Black or African-American |
| W | White |
| H | Hispanic or Latino |
| O | Other |
| U | Unknown |

User-defined Table 0006 – Religion [From HL7 Version 2.3.1] [Refer to HL7 Standard Version 2.3.1] (use in PID-17)

HL7-defined Table 0008 - Acknowledgment code (use in MSA-1)

| Value | Description |
|-------|--|
| AA | Original mode: Application Accept Enhanced mode: Application acknowledgment: Accept |
| AE | Original mode: Application Error Enhanced mode: Application acknowledgment: Error |
| AR | Original mode: Application Reject Enhanced mode: Application acknowledgment: Reject |
| CA | Enhanced mode: Application acknowledgment: Commit Accept |
| CE | Enhanced mode: Application acknowledgment: Commit Error |
| CR | Enhanced mode: Application acknowledgment: Commit Reject |

User-defined Table 0010 - Physician ID (use in all XCN data types; including PV1-7, 8,9,17, RXA-10) [locally-defined] Each facility should establish a system of coding its reporting physicians. The National Provider Identifier (NPI) may be used for this purpose when it becomes available.

HL7-defined Table 0048 - What subject filter [only selected values listed] (use in QRD-9)

| Value | Description |
|-------|---------------------|
| VXI | Vaccine Information |

HL7-defined Table 0061 - Check digit scheme (use in all CX data types; including PID-2,3,4,18,21)

| Value | Description |
|-------|--|
| M10 | Mod 10 algorithm |
| M11 | Mod 11 algorithm |
| ISO | ISO 7064: 1983 |
| NPI | Check digit algorithm in the US National Provider Identifier |

User-defined Table 0062 - Event reason [values suggested by HL7; with NIP-suggested additions] (use in EVN-4)

| Value | Description |
|-------|---|
| 01 | Patient request |
| 02 | Physician order |
| 03 | Census management |
| 04 | Add person data to immunization registry |
| 05 | Delete person data from immunization registry |

| | |
|----|--|
| 06 | <i>Update person data in immunization registry</i> |
| 07 | <i>Merge person data in immunization registry</i> |

User-defined Table 0063 - Relationship (From HL7 standard, Version 2.3.1) (use in NK1-3, NK1-31, IN1-17, IN2-62)

| Value | Description |
|-------|-----------------------|
| ASC | Associate |
| BRO | Brother |
| CGV | Care giver |
| CHD | Child |
| DEP | Handicapped dependent |
| DOM | Life partner |
| EMC | Emergency contact |
| EME | Employee |
| EMR | Employer |
| EXF | Extended family |
| FCH | Foster child |
| FND | Friend |
| FTH | Father |
| GCH | Grandchild |
| GRD | Guardian |
| GRP | Grandparent |
| MGR | Manager |
| MTH | Mother |
| NCH | Natural child |
| NON | None |
| OAD | Other adult |
| OTH | Other |
| OWN | Owner |
| PAR | Parent |
| SCH | Stepchild |
| SEL | Self |
| SIB | Sibling |
| SIS | Sister |
| SPO | Spouse |
| TRA | Trainer |
| UNK | Unknown |
| WRD | Ward of court |

User-defined Table 0064 - Financial class [NIP suggested values] (use in PV1-20)

| Value | Description |
|---------------------------------|---|
| VFC eligibility codes | |
| V00 | <i>VFC eligibility not determined/unknown</i> |
| V01 | <i>not VFC eligible</i> |
| V02 | <i>VFC eligible - Medicaid/Medicaid Managed Care expansion</i> |
| V03 | <i>VFC eligible - Uninsured</i> |
| V04 | <i>VFC eligible - American Indian/Alaskan Native</i> |
| V05 | <i>VFC eligible - Federally Qualified Health Center Patient (under-insured)</i> |
| V06 | <i>VFC eligible - State-specific eligibility</i> |
| V07 | <i>VFC eligible - Local-specific eligibility</i> |
| S-CHIP eligibility codes | |
| CH00 | <i>S-CHIP coverage-not VFC eligible</i> |
| CH01 | <i>S-CHIP coverage-separate from Medicaid-not VFC eligible</i> |
| CH02 | <i>S-CHIP coverage-combination of Medicaid and separate-not VFC eligible</i> |

| Value | Description |
|---|---|
| Health Plan Type codes | |
| H01 | self pay |
| H02 | Medicaid (may be called by state-specific name, e.g., Medi-Cal) |
| H03 | third party or private insurance |
| Insured Status | |
| IS00 | Some or all vaccine costs covered |
| IS01 | Underinsured (no vaccine costs covered and not FQC/RHC) |
| State Program codes - state specific; use state 2-letter abbreviation plus a number for the value; see example below | |
| e.g., NY01 | e.g., IHAP eligible |

HL7- Defined Table 0065 – Specimen Action Code (Use in OBR-11)

| Value | Description |
|-------|--|
| A | Add ordered tests to the existing specimen |
| G | Generated order; reflex order |
| L | Lab to obtain specimen from patient |
| O | Specimen obtained by service other than Lab |
| P | Pending specimen; Order sent prior to delivery |
| R | Revised order |
| S | Schedule the tests specified below |

HL7-defined Table 0070 – Specimen Source Codes (use in OBR-15)

| Value | Description |
|-------|-----------------------|
| ABS | Abscess |
| AMN | Amniotic fluid |
| ASP | Aspirate |
| BPH | Basophils |
| BIFL | Bile fluid |
| BLDA | Blood arterial |
| BBL | Blood bag |
| BLDC | Blood capillary |
| BPU | Blood product unit |
| BLDV | Blood venous |
| BON | Bone |
| BRTH | Breath (use EXHLD) |
| BRO | Bronchial |
| BRN | Burn |
| CALC | Calculus (=Stone) |
| CDM | Cardiac muscle |
| CNL | Cannula |
| CTP | Catheter tip |
| CSF | Cerebral spinal fluid |
| CVM | Cervical mucus |
| CVX | Cervix |
| COL | Colostrum |
| CBLD | Cord blood |
| CNJT | Conjunctiva |
| CUR | Curettage |
| CYST | Cyst |
| DIAF | Dialysis fluid |

| Value | Description |
|-------|-----------------------------------|
| DOSE | Dose med or substance |
| DRN | Drain |
| DUFL | Duodenal fluid |
| EAR | Ear |
| EARW | Ear wax (cerumen) |
| ELT | Electrode |
| ENDC | Endocardium |
| ENDM | Endometrium |
| EOS | Eosinophils |
| RBC | Erythrocytes |
| EYE | Eye |
| EXHLD | Exhaled gas (=breath) |
| FIB | Fibroblasts |
| FLT | Filter |
| FIST | Fistula |
| FLU | Body fluid, unsp |
| GAS | Gas |
| GAST | Gastric fluid/contents |
| GEN | Genital |
| GENC | Genital cervix |
| GENL | Genital lochia |
| GENV | Genital vaginal |
| HAR | Hair |
| IHG | Inhaled Gas |
| IT | Intubation tube |
| ISLT | Isolate |
| LAM | Lamella |
| WBC | Leukocytes |
| LN | Line |
| LNA | Line arterial |
| LVN | Line venous |
| LIQ | Liquid NOS |
| LYM | Lymphocytes |
| MAC | Macrophages |
| MAR | Marrow |
| MEC | Meconium |
| MBLD | Menstrual blood |
| MLK | Milk |
| MILK | Breast milk |
| NAIL | Nail |
| NOS | Nose (nasal passage) |
| ORH | Other |
| PAFL | Pancreatic fluid |
| PAT | Patient |
| PRT | Peritoneal fluid /ascites |
| PLC | Placenta |
| PLAS | Plasma |
| PLB | Plasma bag |
| PLR | Pleural fluid (thoracentesis fld) |
| PMN | Polymorphonuclear neutrophils |
| PPP | Platelet poor plasma |
| PRP | Platelet rich plasma |

| Value | Description |
|-------|------------------------------|
| PUS | Pus |
| RT | Route of medicine |
| SAL | Saliva |
| SEM | Seminal fluid |
| SER | Serum |
| SKN | Skin |
| SKM | Skeletal muscle |
| SPRM | Spermatozoa |
| SPT | Sputum |
| SPTC | Sputum - coughed |
| SPTT | Sputum - tracheal aspirate |
| STON | Stone (use CALC) |
| STL | Stool = Fecal |
| SWT | Sweat |
| SNV | Synovial fluid (Joint fluid) |
| TEAR | Tears |
| THRT | Throat |
| THRB | Thrombocyte (platelet) |
| TISS | Tissue |
| TISG | Tissue gall bladder |
| TLGI | Tissue large intestine |
| TLNG | Tissue lung |
| TISPL | Tissue placenta |
| TSMI | Tissue small intestine |
| TISU | Tissue ulcer |
| TUB | Tube NOS |
| ULC | Ulcer |
| UMB | Umbilical blood |
| UMED | Unknown medicine |
| URTH | Urethra |
| UR | Urine |
| URC | Urine clean catch |
| URT | Urine catheter |
| URNS | Urine sediment |
| USUB | Unknown substance |
| VOM | Vomitus |
| BLD | Whole blood |
| BDY | Whole body |
| WAT | Water |
| WICK | Wick |
| WND | Wound |
| Wnda | Wound abscess |
| WNDE | Wound exudate |
| WNDD | Wound drainage |
| XXX | To be specified |

HL7-defined Table 0074 – Diagnostic Service Section ID (Use in OBR-24) [Refer to HL7 Standard Version 2.3.1, Appendix A]

HL7-defined Table 0076 - Message type [only selected values listed] (use in MSH-9, first component)

| Value | Description |
|-------|--|
| ACK | General Acknowledgment |
| ADR | ADT response |
| ADT | ADT message |
| QCK | Query General Acknowledgment |
| VXQ | Query for vaccination record |
| VXX | Vaccination query response with multiple PID matches |
| VXR | Vaccination query record response |
| VXU | Unsolicited vaccination record update |
| ORU | Unsolicited observation results |

HL7-defined Table 0078 - Abnormal flags (use in OBX-8)

| Value | Description |
|--|---|
| L | Below low normal |
| H | Above high normal |
| LL | Below lower panic limits |
| HH | Above upper panic limits |
| < | Below absolute low-off instrument scale |
| > | Above absolute high-off instrument scale |
| N | Normal (applies to non-numeric results) |
| A | Abnormal (applies to non-numeric results) |
| AA | Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units) |
| null | No range defined, or normal ranges don't apply |
| U | Significant change up |
| D | Significant change down |
| B | Better--use when direction not relevant |
| W | Worse--use when direction not relevant |
| For microbiology susceptibilities only: | |
| S | Susceptible* |
| R | Resistant* |
| I | Intermediate* |
| MS | Moderately susceptible* |
| VS | Very susceptible* |

HL7-defined Table 0085 - Observation result status codes interpretation (use in OBX-11)

| Value | Description |
|-------|--|
| C | Record coming over is a correction and thus replaces a final result |
| D | Deletes the OBX record |
| F | Final results; Can only be changed with a corrected result |
| I | Specimen in lab; results pending |
| N | Not asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought |
| O | Order detail description only (no result) |
| P | Preliminary results |
| R | Results entered - not verified |
| S | Partial results |
| X | Results cannot be obtained for this observation |
| U | Results status change to Final without re-transmitting results already sent as 'preliminary.' e.g., radiology changes status from preliminary to final |
| W | Post original as wrong; e.g., transmitted for wrong patient |

HL7-defined Table 0091 - Query priority (use in QRD-3)

| Value | Description |
|-------|-------------|
| D | Deferred |
| I | Immediate |

HL7-defined Table 0102 - Delayed acknowledgment type (use in MSA-5)

| Value | Description |
|-------|---|
| D | Message received, stored for later processing |
| F | Acknowledgment after processing |

HL7-defined Table 0103 - Processing ID (use in MSH-11)

| Value | Description |
|-------|-------------|
| D | Debugging |
| P | Production |
| T | Training |

HL7-defined Table 0104 - Version ID (use in MSH-12)

| Value | Description |
|-------|----------------------------|
| 2.0 | Release 2.0 September 1988 |
| 2.0D | Demo 2.0 October 1988 |
| 2.1 | Release 2.1 March 1990 |
| 2.2 | Release 2.2 December 1994 |
| 2.3 | Release 2.3 March 1997 |
| 2.3.1 | Release 2.3.1 May 1999 |
| 2.3.1 | Release 2.3.1 October 2000 |

HL7-defined Table 0105 - Source of comment (use in NTE-2)

| Value | Description |
|-------|--|
| L | Ancillary (filler) department is source of comment |
| P | Orderer (placer) is source of comment |
| O | Other system is source of comment |

HL7-defined Table 0106 - Query/Response format code (use in QRD-2)

| Value | Description |
|-------|---------------------------------------|
| D | Response is in display format |
| R | Response is in record-oriented format |
| T | Response is in tabular format |

HL7-defined Table 0107 - Deferred response type (use in QRD-5)

| Value | Description |
|-------|------------------------------------|
| B | Before the date/time specified |
| L | Later than the date/time specified |

HL7-defined Table 0108 - Query results level (use in QRD-12)

| Value | Description |
|-------|---------------------------|
| O | Order plus order status |
| R | Results without bulk text |
| S | Status only |
| T | Full results |

HL7-defined Table 0119 – Order Control Codes [only selected values listed] (use in ORC-1)

| Value | Order Control Codes |
|-------|----------------------------------|
| NW | New order (O01) |
| OK | Order accepted & OK (O02) |
| UA | Unable to accept order (O02/ORR) |
| CA | Cancel order request (O01) |
| OC | Order canceled (O01) |
| CR | Canceled as requested (O02) |
| UC | Unable to cancel (O02) |
| DC | Discontinue order request (O01) |
| OD | Order discontinued (O01) |
| DR | Discontinued as requested (O02) |
| UD | Unable to discontinue (O02) |
| HD | Hold order request (O01) |
| OH | Order held (O01) |
| UH | Unable to put on hold (O02) |

HL7- Defined Table 0123 – Result Status (use in OBR-25)

| Value | Description |
|-------|--|
| O | Order received; specimen not yet received |
| I | No results available; specimen received, procedure incomplete |
| S | No results available; procedure scheduled, but not done |
| A | Some, but not all, results available |
| P | Preliminary: A verified early result is available, final results not yet obtained |
| C | Correction to results |
| C | Correction to results |
| R | Results stored; not yet verified |
| F | Final results; results stored and verified. Can only be changed with a corrected result. |
| X | No results available; Order canceled. |
| Y | No order on record for this test. (Used only on queries) |
| Y | No order on record for this test. (Used only on queries) |
| Z | No record of this patient. (Used only on queries) |

HL7-defined Table 0125 – Value Type (use in OBX-2)

| Value type | Description |
|------------|--|
| AD | Address |
| CE | Coded Entry |
| CF | Coded Element With Formatted Values |
| CK | Composite ID With Check Digit |
| CN | Composite ID And Name |
| CP | Composite Price |
| CX | Extended Composite ID With Check Digit |
| DT | Date |
| ED | Encapsulated Data |
| FT | Formatted Text (Display) |
| MO | Money |
| NM | Numeric |
| PN | Person Name |
| RP | Reference Pointer |
| SN | Structured Numeric |
| ST | String Data. |
| TM | Time |
| TN | Telephone Number |
| TS | Time Stamp (Date & Time) |
| TX | Text Data (Display) |
| XAD | Extended Address |
| XCN | Extended Composite Name And Number For Persons |
| XON | Extended Composite Name And Number For Organizations |
| XPN | Extended Person Name |
| XTN | Extended Telecommunications Number |

HL7-defined Table 0126 - Quantity limited request (use in QRD-7)

| Value | Description |
|-------|-----------------|
| CH | Characters |
| LI | Lines |
| PG | Pages |
| RD | Records |
| ZO | Locally defined |

HL7-defined Table 0136 - Yes/No indicator (use in PID-24,30)

| Value | Description |
|----------|---|
| Y | Yes |
| N | No |
| ""<null> | <i>Not obtained (when used by immunization registries as defined in PD1-12)</i> |

HL7-defined Table 0155 - Accept/Application acknowledgment conditions (use in MSH-15 and 16)

| Value | Description |
|-------|------------------------------|
| AL | Always |
| NE | Never |
| ER | Error/Reject conditions only |
| SU | Successful completion only |

HL7-defined Table 0162 - Route of administration [only selected values listed] (use in RXR-1)

| Value | Description |
|-------|---------------|
| ID | Intradermal |
| IM | Intramuscular |
| IN | Intranasal |
| IV | Intravenous |
| PO | Oral |
| SC | Subcutaneous |
| TD | Transdermal |

HL7-defined Table 0163 - Administrative Site [only selected values listed] (use in RXR-2)

| Value | Description |
|-------|------------------------|
| LT | Left Thigh |
| LA | Left Arm |
| LD | Left Deltoid |
| LG | Left Gluteous Medius |
| LVL | Left Vastus Lateralis |
| LLFA | Left Lower Forearm |
| RA | Right Arm |
| RT | Right Thigh |
| RVL | Right Vastus Lateralis |
| RG | Right Gluteous Medius |
| RD | Right Deltoid |
| RLFA | Right Lower Forearm |

User-defined Table 0171 – Citizenship (Use in PID-26) [Locally defined]**User-defined Table 0172 – Veterans Military Status** (Use in PID-27) [Locally defined]**User-defined Table 0188 – Operator ID** (Use in EVN-5) [Locally defined]

User-defined Table 0189 - Ethnic Group [These values are compliant with the OMB directive] (use in PID-22)

| Value | Description |
|-------|------------------------|
| H | Hispanic or Latino |
| NH | not Hispanic or Latino |
| U | Unknown |

HL7-defined Table 0190 - Address type (use in all XAD data types; including PID-11)

| Value | Description |
|-------|---|
| C | Current or Temporary |
| P | Permanent |
| M | Mailing |
| B | Firm/Business |
| O | Office |
| H | Home |
| N | Birth (nee) |
| F | Country of Origin |
| L | Legal Address |
| BLD | Birth delivery location [<i>use for birth facility</i>] |
| BR | Residence at birth [<i>use for residence at birth</i>] |
| RH | Registry home |
| BA | Bad address |

HL7-defined Table 0200 - Name type (use in all XCN, XPN data types; including PID-5,6,9)

| Value | Description |
|-------|------------------------|
| A | Alias Name |
| L | Legal Name |
| D | Display Name |
| M | Maiden Name |
| C | Adopted Name |
| B | Name at Birth |
| P | Name of Partner/Spouse |
| U | Unspecified |

HL7-defined Table 0201 - Telecommunication use code (use in all XTN data types; including PID-13,14)

| Value | Description |
|-------|--------------------------|
| PRN | Primary Residence Number |
| ORN | Other Residence Number |
| WPN | Work Number |
| VHN | Vacation Home Number |
| ASN | Answering Service Number |
| EMR | Emergency Number |
| NET | Network (email) Address |
| BPN | Beeper Number |

HL7-defined Table 0202 - Telecommunication equipment type (use in all XTN data types; including PID-13, 14)

| Value | Description |
|----------|--|
| PH | Telephone |
| FX | Fax |
| MD | Modem |
| CP | Cellular Phone |
| BP | Beeper |
| Internet | Internet Address: Use Only if Telecommunication Use Code is NET |
| X.400 | X.400 email address: Use Only if Telecommunication Use Code is NET |

User-defined Table 0203 - Identifier type [values suggested by HL7; with NIP-suggested additions] (use in all CX, XCN type codes; including PID-2,3,4,18,21)

| Value | Description |
|-------|---|
| AM | American Express |
| AN | Account Number |
| ANON | Anonymous Identifier |
| BR | Birth Registry Number |
| DI | Diner's Club Card |
| DL | Driver's License Number |
| DN | Doctor Number |
| DS | Discover Card |
| EI | Employee Number |
| EN | Employer Number |
| FI | Facility Identifier |
| GI | Guarantor Internal Identifier |
| GN | Guarantor External Identifier |
| LN | License Number |
| LR | Local Registry ID |
| MS | MasterCard |
| MA | Medicaid Number |
| MC | Medicare Number |
| MR | Medical Record Number |
| NE | National Employer Identifier |
| NH | National Health Plan Identifier |
| NI | National Unique Individual Identifier |
| NPI | National Provider Identifier |
| PI | Patient Internal Identifier |
| PN | Person Number |
| PRN | Provider Number |
| PT | Patient External Identifier |
| RRI | Regional Registry ID |
| RR | Railroad Retirement Number |
| SL | State License |
| SR | State Registry ID |
| SS | Social Security Number |
| U | Unspecified |
| UPIN | Medicare/HCFAs Universal Physician ID Numbers |
| VS | VISA |
| VN | Visit Number |
| WC | WIC Identifier |
| XX | Organization Identifier |
| VEI | Vaccinator Employee Number |

| Value | Description |
|-------|--------------------------|
| OEI | Orderer Employee Number |
| REI | Recorder Employee Number |

User-defined Table 0204 - Organizational name type [values suggested by HL7] (use in all XON data types)

| Value | Description |
|-------|-----------------------------|
| A | Alias Name |
| L | Legal Name |
| D | Display Name |
| SL | Stock Exchange Listing Name |

HL7-defined Table 0207 - Processing mode (use in MSH-11)

| Value | Description |
|---------|--|
| A | Archive |
| R | Restore from archive |
| I | Initial load |
| <blank> | Not present (the default, meaning <i>current</i> processing) |

User-defined Table 0208 - Query response status [values suggested by HL7] (use in QAK-2)

| Value | Description |
|-------|---|
| OK | Data found, no errors (this is the default) |
| NF | No data found, no errors |
| AE | Application error |
| AR | Application reject |

HL7-defined Table 0211 - Alternate character sets [only selected values listed] (use in MSH-18)

| Value | Description |
|-------|--|
| ASCII | The printable 7-bit ASCII character set (This is the default if this field is omitted) |

User-defined Table 0212 - Nationality [ISO 3166 suggested by HL7; this table shows selected values only. Note that the table reflects only 3-letter codes. Two-letter and numeric codes are also available.] Partial list of ISO 3166 country codes set is available at: <<ftp://ftp.ripe.net/iso3166-countrycodes>> (use in PID-28; also use for country code in all XAD data types)

| Value | Description |
|-------|--------------------------------------|
| CAN | Canada |
| MEX | Mexico |
| USA | United States |
| UMI | United States Minor Outlying Islands |

User-defined Table 0215 - Publicity code [values suggested by NIP] (use in PD1-11)

| Value | Description |
|-------|--------------------------------------|
| 01 | No reminder/recall |
| 02 | Reminder/recall - any method |
| 03 | Reminder/recall - no calls |
| 04 | Reminder only - any method |
| 05 | Reminder only - no calls |
| 06 | Recall only - any method |
| 07 | Recall only - no calls |
| 08 | Reminder/recall - to provider |
| 09 | Reminder to provider |
| 10 | Only reminder to provider, no recall |
| 11 | Recall to provider |
| 12 | Only recall to provider, no reminder |

User-defined Table 0220 - Living arrangement [values suggested by HL7; with NIP-suggested additions] (use in NK1-21)

| Value | Description |
|-------|------------------|
| A | Alone |
| F | Family |
| I | Institution |
| R | Relative |
| U | Unknown |
| S | Spouse only |
| W | With patient |
| N | Not with patient |

User-defined Table 0222 - Contact reason [values suggested by NIP] (use in NK1-29)

| Value | Description |
|-------|--|
| RR | NK1 is reminder/recall contact for immunization registry |
| PC | NK1 is responsible for patient care |

HL7-defined Table 0224 – Transport Arranged (Use in OBR-41)
[Refer to HL7 Standard Version 2.3.1, Appendix A]**HL7-defined Table 0225 – Escort Required** (Use in OBR-42) [Refer to HL7 Standard Version 2.3.1, Appendix A]**HL7-defined Table 0227 - Manufacturers of vaccines (code = MVX)** [for the most current values of this table, refer to <<http://www.cdc.gov/nip/registry/tech.htm>>] (use in RXA-17)

| Value | Vaccine Manufacturer/Distributor |
|-------|---|
| AB | Abbott Laboratories |
| AD | Adams Laboratories |
| ALP | Alpha Therapeutic Corporation |
| AR | Armour [Inactive-use CEN] |
| AVI | Aviron |
| BA | Baxter Healthcare Corporation |
| BAY | Bayer Corporation (includes Miles, Inc. and Cutter Laboratories) |
| BP | Berna Products [Inactive-use BPC] |
| BPC | Berna Products Corporation (includes Swiss Serum and Vaccine Institute Berne) |
| CEN | Centeon L.L.C. (includes Armour Pharmaceutical Company) |

| Value | Vaccine Manufacturer/Distributor |
|-------|--|
| CHI | Chiron Corporation |
| CON | Connaught [Inactive -use PMC] |
| EVN | Evans Medical Limited |
| GRE | Greer Laboratories, Inc. |
| IAG | Immuno International AG |
| IM | Merieux [Inactive -use PMC] |
| IUS | Immuno-U.S., Inc. |
| JPN | The Research Foundation for Microbial Diseases of Osaka University (BIKEN) |
| KGC | Korea Green Cross Corporation |
| LED | Lederle [Inactive -use WAL] |
| MA | Massachusetts Public Health Biologic Laboratories |
| MED | MedImmune, Inc. |
| MIL | Miles [Inactive -use BAY] |
| MIP | BioPort (formerly Michigan Biologic Products Institute) |
| MSD | Merck & Co., Inc. |
| NAB | NABI (formerly North American Biologicals, Inc.) |
| NYB | New York Blood Center |
| NAV | North American Vaccine, Inc. |
| NOV | Novartis Pharmaceutical Corporation |
| OTC | Organon Teknika Corporation |
| ORT | Ortho Diagnostic Systems, Inc. |
| PD | Parkedale Pharmaceuticals (formerly Parke-Davis) |
| PMC | Pasteur Merieux Connaught (<i>includes Connaught Laboratories and Pasteur Merieux</i>) |
| PRX | Praxis Biologics [Inactive -use WAL] |
| SCL | Sclavo, Inc. |
| SI | Swiss Serum and Vaccine Inst. [Inactive -use BPC] |
| SKB | SmithKline Beecham |
| USA | United States Army Medical Research and Materiel Command |
| WA | Wyeth-Ayerst [Inactive -use WAL] |
| WAL | Wyeth-Ayerst (<i>includes Wyeth-Lederle Vaccines and Pediatrics, Wyeth Laboratories, Lederle Laboratories, and Praxis Biologics</i>) |
| OTH | Other |
| UNK | Unknown manufacturer |

User-defined Table 0288 - Census tract (use in all XAD; including PID-11)

For information about identifying census tracts, see <www.census.gov/geo/www/tractez.html>.

User-defined Table 0289 - County/parish (use in all XAD; including PID-11)

A complete list of FIPS 6-4 county codes is available at <www.itl.nist.gov/div897/pubs/fip6-4.htm>.

According to the FIPS guidance, the 2-letter state code (available at <www.itl.nist.gov/div897/pubs/fip5-2.htm>) plus the numeric county code should be used (e.g., AZ001 represents Apache County, Arizona and AL001 represents Autauga County, Alabama).

HL7-defined Table 0292 - Codes for vaccines administered (code=CVX) [for the most current values of this table, refer to <<http://www.cdc.gov/nip/registry/tech.htm>>] (use in RXA-5)

NOTE: parenteral unless otherwise specified

| Value | Short Description | Full Vaccine Name |
|-------|------------------------------------|--|
| 54 | adenovirus, type 4 | adenovirus vaccine, type 4, live, oral |
| 55 | adenovirus, type 7 | adenovirus vaccine, type 7, live, oral |
| 82 | adenovirus, NOS | adenovirus vaccine, NOS |
| 24 | anthrax | anthrax vaccine |
| 19 | BCG | Bacillus Calmette-Guerin vaccine |
| 27 | botulinum antitoxin | botulinum antitoxin |
| 26 | cholera | cholera vaccine |
| 29 | CMVIG | cytomegalovirus immune globulin, intravenous |
| 56 | dengue fever | dengue fever vaccine |
| 12 | diphtheria antitoxin | diphtheria antitoxin |
| 28 | DT (pediatric) | diphtheria and tetanus toxoids, adsorbed for pediatric use |
| 20 | DtaP | diphtheria, tetanus toxoids and acellular pertussis vaccine |
| 50 | DTaP-Hib | DTaP- <i>Haemophilus influenzae</i> type b conjugate vaccine |
| 01 | DTP | diphtheria, tetanus toxoids and pertussis vaccine |
| 22 | DTP-Hib | DTP- <i>Haemophilus influenzae</i> type b conjugate vaccine |
| 57 | hantavirus | hantavirus vaccine |
| 52 | Hep A, adult | hepatitis A vaccine, adult dosage |
| 83 | Hep A, ped/adol, 2 dose | hepatitis A vaccine, pediatric/adolescent dosage, 2 dose schedule |
| 84 | Hep A, ped/adol, 3 dose | hepatitis A vaccine, pediatric/adolescent dosage, 3 dose schedule |
| 31 | Hep A, pediatric, NOS | hepatitis A vaccine, pediatric dosage, NOS |
| 85 | Hep A, NOS | hepatitis A vaccine, NOS |
| 30 | HBIG | hepatitis B immune globulin |
| 08 | Hep B, adolescent or pediatric | hepatitis B vaccine, pediatric or pediatric/adolescent dosage |
| 42 | Hep B, adolescent/high risk infant | hepatitis B vaccine, adolescent/high risk infant dosage |
| 43 | Hep B, adult | hepatitis B vaccine, adult dosage |
| 44 | Hep B, dialysis | hepatitis B vaccine, dialysis patient dosage |
| 45 | Hep B, NOS | hepatitis B vaccine, NOS |
| 58 | Hep C | hepatitis C vaccine |
| 59 | Hep E | hepatitis E vaccine |
| 60 | herpes simplex 2 | herpes simplex virus, type 2 vaccine |
| 46 | Hib (PRP-D) | <i>Haemophilus influenzae</i> type b vaccine, PRP-D conjugate |
| 47 | Hib (HbOC) | <i>Haemophilus influenzae</i> type b vaccine, HbOC conjugate |
| 48 | Hib (PRP-T) | <i>Haemophilus influenzae</i> type b vaccine, PRP-T conjugate |
| 49 | Hib (PRP-OMP) | <i>Haemophilus influenzae</i> type b vaccine, PRP-OMP conjugate |
| 17 | Hib, NOS | <i>Haemophilus influenzae</i> type b vaccine, conjugate NOS |
| 51 | Hib-Hep B | <i>Haemophilus influenzae</i> type b conjugate and Hepatitis B vaccine |

| Value | Short Description | Full Vaccine Name |
|-------|---|--|
| 61 | HIV | human immunodeficiency virus vaccine |
| 62 | HPV | human papilloma virus vaccine |
| 86 | IG | immune globulin, intramuscular |
| 87 | IGIV | immune globulin, intravenous |
| 14 | IG, NOS | immune globulin, NOS |
| 15 | influenza, split (incl. purified surface antigen) | influenza virus vaccine, split virus (incl. purified surface antigen) |
| 16 | influenza, whole | influenza virus vaccine, whole virus |
| 88 | influenza, NOS | influenza virus vaccine, NOS |
| 10 | IPV | poliovirus vaccine, inactivated |
| 02 | OPV | poliovirus vaccine, live, oral |
| 89 | polio, NOS | poliovirus vaccine, NOS |
| 39 | Japanese encephalitis | Japanese encephalitis vaccine |
| 63 | Junin virus | Junin virus vaccine |
| 64 | leishmaniasis | leishmaniasis vaccine |
| 65 | leprosy | leprosy vaccine |
| 66 | Lyme disease | Lyme disease vaccine |
| 03 | MMR | measles, mumps and rubella virus vaccine |
| 04 | M/R | measles and rubella virus vaccine |
| 94 | MMRV | measles, mumps, rubella, and varicella virus vaccine |
| 67 | malaria | malaria vaccine |
| 05 | measles | measles virus vaccine |
| 68 | melanoma | melanoma vaccine |
| 32 | meningococcal | meningococcal polysaccharide vaccine |
| 07 | mumps | mumps virus vaccine |
| 69 | parainfluenza-3 | parainfluenza-3 virus vaccine |
| 11 | pertussis | pertussis vaccine |
| 23 | plague | plague vaccine |
| 33 | pneumococcal | pneumococcal vaccine |
| 70 | Q fever | Q fever vaccine |
| 18 | rabies, intramuscular injection | rabies vaccine, for intramuscular injection |
| 40 | rabies, intradermal injection | rabies vaccine, for intradermal injection |
| 90 | rabies, NOS | rabies vaccine, NOS |
| 72 | rheumatic fever | rheumatic fever vaccine |
| 73 | Rift Valley fever | Rift Valley fever vaccine |
| 34 | RIG | rabies immune globulin |
| 74 | rotavirus | rotavirus vaccine, tetravalent, live, oral |
| 71 | RSV-IGIV | respiratory syncytial virus immune globulin, intravenous |
| 93 | RSV-Mab | respiratory syncytial virus monoclonal antibody (palivizumab), intramuscular |
| 06 | rubella | rubella virus vaccine |
| 38 | rubella/mumps | rubella and mumps virus vaccine |
| 75 | smallpox | smallpox vaccine |
| 76 | <i>Staphylococcus</i> bacterio lysate | <i>Staphylococcus</i> bacteriophage lysate |
| 09 | Td (adult) | tetanus and diphtheria toxoids, adsorbed for adult use |
| 35 | tetanus toxoid | tetanus toxoid |
| 77 | tick-borne encephalitis | tick-borne encephalitis vaccine |
| 13 | TIG | tetanus immune globulin |
| 95 | TST-OT tine test | tuberculin skin test; old tuberculin, multipuncture device |
| 96 | TST-PPD intradermal | tuberculin skin test; purified protein derivative |

| Value | Short Description | Full Vaccine Name |
|-------|--|---|
| | | solution, intradermal |
| 97 | TST-PPD tine test | tuberculin skin test; purified protein derivative, multipuncture device |
| 98 | TST, NOS | tuberculin skin test; NOS |
| 78 | tularemia vaccine | tularemia vaccine |
| 25 | typhoid, oral | typhoid vaccine, live, oral |
| 41 | typhoid, parenteral | typhoid vaccine, parenteral, other than acetone-killed, dried |
| 53 | typhoid, parenteral, AKD (U.S. military) | typhoid vaccine, parenteral, acetone-killed, dried (U.S. military) |
| 91 | typhoid, NOS | typhoid vaccine, NOS |
| 79 | vaccinia immune globulin | vaccinia immune globulin |
| 21 | varicella | varicella virus vaccine |
| 81 | VEE, inactivated | Venezuelan equine encephalitis, inactivated |
| 80 | VEE, live | Venezuelan equine encephalitis, live, attenuated |
| 92 | VEE, NOS | Venezuelan equine encephalitis vaccine, NOS |
| 36 | VZIG | varicella zoster immune globulin |
| 37 | yellow fever | yellow fever vaccine |
| 999 | unknown | unknown vaccine or immune globulin |
| 99 | RESERVED - do not use | RESERVED - do not use |

User-defined Table 0296 - Language [ISO 639 suggested by HL7; selected 2-letter values listed from ISO 639:1988; The full set of ISO 639 Language Codes is available for purchase from <www.ansi.org>. Where ISO 2-letter codes are not available, 3-letter codes are given from the *Ethnologue*, available at <www.sil.org/ethnologue/>.] (use in MSH-19, PID-15)

| Value | Description |
|-------|------------------------|
| ASE | American Sign Language |
| ar | Arabic |
| hy | Armenian |
| bn | Bengali |
| km | Cambodian (Khmer) |
| CJD | Chamorro |
| YUH | Chinese, Cantonese |
| zh | Chinese, Mandarin |
| hr | Croatian |
| cs | Czech |
| nl | Dutch |
| en | English |
| fa | Farsi (Persian) |
| fr | French |
| de | German |
| el | Greek |
| hi | Hindi |
| BLU | Hmong |
| hu | Hungarian |
| ILO | Ilocano |
| id | Indonesian |
| it | Italian |
| ja | Japanese |
| ko | Korean |
| lo | Laotian |
| pl | Polish |

| Value | Description |
|-------|---|
| pt | Portuguese |
| ro | Romanian |
| ru | Russian |
| sm | Samoan |
| sr | Serbian |
| sk | Slovak |
| so | Somali |
| es | Spanish |
| tl | Tagalog |
| th | Thai |
| to | Tongan |
| uk | Ukrainian |
| ur | Urdu |
| vi | Vietnamese |
| yi | Yiddish |
| OTH | <i>Other (must add text component of the CE field with description)</i> |

User-defined Table 0297 - CN ID source (use in all XCN data types) [locally-defined]

User-defined Table 0300 - Namespace ID (use in all EI, HD data types) [locally-defined]

HL7-defined Table 0301 - Universal ID type (use in all HD data types)

| Value | Description |
|--------|---|
| DNS | An Internet dotted name. Either in ASCII or as integers. |
| GUID | Same as UUID. |
| HCD | The CEN Healthcare Coding Scheme Designator. (Identifiers used in DICOM follow this assignment scheme.) |
| HL7 | Reserved for future HL7 registration schemes. |
| ISO | An International Standards Organization Object Identifier. |
| L,M,N | These are reserved for locally defined coding schemes. |
| Random | Usually a base64 encoded string of random bits. The uniqueness depends on the length of the bits. Mail systems often generate ASCII string "unique names," from a combination of random bits and system names. Obviously, such identifiers will not be constrained to the base64 character set. |
| UUID | The DCE Universal Unique Identifier. |
| X400 | An X.400 MHS format identifier. |
| X500 | An X.500 directory name. |

HL7-defined Table 0322 - Completion status (use in RXA-20)

| Value | Description |
|-------|------------------------|
| CP | Complete |
| RE | Refused |
| NA | Not Administered |
| PA | Partially Administered |

HL7-defined Table 0323 - Action code (use in RXA-21)

| Value | Description |
|-------|-------------|
| A | Add |
| D | Delete |
| U | Update |

HL7-defined Table 0354 - Message structure [only selected values listed] (use in MSH-9, third component)

| Value | Events |
|---------|--|
| ADT A01 | A01, A04, A05, A08, A13, A14, A28, A31 |
| ADT A02 | A02, A21, A22, A23, A25, A26, A27, A29, A32, A33 |
| ADT A30 | A30, A34, A35, A36, A46, A47, A48, A49 |
| VXQ V01 | V01 |
| VXR V03 | V03 |
| VXU V04 | V04 |
| VXX V02 | V02 |
| ORU R01 | R01 |

HL7-defined Table 0356 - Alternate character set handling scheme (use in MSH-20)

| Value | Description |
|---------------|---|
| ISO 2022-1994 | This standard is titled "Information Technology - Character Code Structure and Extension Technique." This standard specifies an escape sequence from basic one byte character set to specified other character set, and vice versa. The escape sequence explicitly specifies what alternate character set is to be evoked... This value is allowed only for HL7 v. 2.3.1. |
| <null> | This is the default, indicating that there is no character set switching occurring in this message. |

HL7-defined Table 0357 - Message error status codes (use in ERR-1)

| Status code | Status text | Description/Comment |
|------------------------|---------------------------|--|
| Success | | |
| 0 | Message accepted | Success. Optional, as the AA conveys this. Used for systems that must always return a status code. |
| Error status codes | | |
| 100 | Segment sequence error | The message segments were not in the proper order or required segments are missing. |
| 101 | Required field missing | A required field is missing from the segment. |
| 102 | Data type error | The field contained data of the wrong data type, e.g., an NM field contained "FOO." |
| 103 | Table value not found | A field of data type ID or IS was compared against the corresponding table, and no match was found. |
| Rejection status codes | | |
| 200 | Unsupported message type | The Message Type is not supported. |
| 201 | Unsupported event code | The Event Code is not supported. |
| 202 | Unsupported processing ID | The Processing ID is not supported. |
| 203 | Unsupported version ID | The Version ID is not supported. |
| 204 | Unknown key identifier | The ID of the patient, order, etc. was not found. Used for transactions <i>other</i> than additions, e.g., transfer of a non-existent patient. |
| 205 | Duplicate key identifier | The ID of the patient, order, etc. already exists. Used in response to addition transactions (Admit, New Order, etc.). |

| Status code | Status text | Description/Comment |
|-------------|----------------------------|---|
| 206 | Application record locked | The transaction could not be performed at the application storage level, e.g., database locked. |
| 207 | Application internal error | A catchall for internal errors not explicitly covered by other codes. |

User-defined Table 0360 - Degree [selected values suggested by HL7; with NIP-suggested additions]
(use in all XPN data types, including PID-5,6,9)

| Value | Description |
|---------------|---|
| <i>PN</i> | <i>Advanced Practice Nurse</i> |
| AA | Associate of Arts |
| AAS | Associate of Applied Science |
| AS | Associate of Science |
| BA | Bachelor of Arts |
| BN | Bachelor of Nursing |
| BS | Bachelor of Science |
| <i>BSN</i> | <i>Bachelor of Science in Nursing</i> |
| CER | Certificate |
| <i>CANP</i> | <i>Certified Adult Nurse Practitioner</i> |
| <i>CMA</i> | <i>Certified Medical Assistant</i> |
| <i>CNP</i> | <i>Certified Nurse Practitioner</i> |
| <i>CNM</i> | <i>Certified Nurse Midwife</i> |
| <i>CNA</i> | <i>Certified Nurse's Assistant</i> |
| <i>CRN</i> | <i>Certified Registered Nurse</i> |
| <i>CNS</i> | <i>Certified Nurse Specialist</i> |
| <i>CPNP</i> | <i>Certified Pediatric Nurse Practitioner</i> |
| DIP | Diploma |
| PHD | Doctor of Philosophy |
| MD | Doctor of Medicine |
| DO | Doctor of Osteopathy |
| <i>EMT</i> | <i>Emergency Medical Technician</i> |
| <i>EMT-P</i> | <i>Emergency Medical Technician - Paramedic</i> |
| <i>FPNP</i> | <i>Family Practice Nurse Practitioner</i> |
| HS | High School Graduate |
| JD | Juris Doctor |
| <i>LPN</i> | <i>Licensed Practical Nurse</i> |
| MA | Master of Arts |
| MBA | Master of Business Administration |
| <i>MPH</i> | <i>Master of Public Health</i> |
| MS | Master of Science |
| <i>MSN</i> | <i>Master of Science – Nursing</i> |
| <i>MDA</i> | <i>Medical Assistant</i> |
| <i>MT</i> | <i>Medical Technician</i> |
| NG | Non-Graduate |
| <i>NP</i> | <i>Nurse Practitioner</i> |
| <i>PharmD</i> | <i>Doctor of Pharmacy</i> |
| <i>PA</i> | <i>Physician Assistant</i> |
| <i>PHN</i> | <i>Public Health Nurse</i> |
| <i>RMA</i> | <i>Registered Medical Assistant</i> |
| <i>RN</i> | <i>Registered Nurse</i> |
| <i>RPH</i> | <i>Registered Pharmacist</i> |
| SEC | Secretarial Certificate |
| TS | Trade School Graduate |

User-defined Table 0361 – Sending/receiving application (use in MSH-3, MSH-5, FHS-3, FHS-5, BHS-3, BHS-5) [locally-defined]

User-defined Table 0364 – Comment Type (use in NTE-4)

| Value | Description |
|-------|------------------------------|
| PI | Patient Instructions |
| AI | Ancillary Instructions |
| GI | General Instructions |
| 1R | Primary Reason |
| 2R | Secondary Reason |
| GR | General Reason |
| RE | Remark |
| DR | Duplicate/Interaction Reason |

User-defined Table 0396 – Coding System [Only selected values listed] [From HL7 Standard, Version 2.3.1] (Use in OBR-4, 26, OBX-3, 5,17)

| Value | Description |
|------------|---|
| 99zzz or L | Local general code (where z is an alphanumeric character) |
| ART | WHO Adverse Reaction Terms |
| C4 | CPT-4 |
| C5 | CPT-5 |
| CDCA | CDC Analyte Codes |
| CDCM | CDC Methods/Instruments Codes |
| CDS | CDC Surveillance |
| CPTM | CPT Modifier Code |
| CST | COSTART |
| CVX | CDC Vaccine Codes |
| E | EUCLIDES |
| E5 | Euclides quantity codes |
| E6 | Euclides Lab method codes |
| E7 | Euclides Lab equipment codes |
| ENZC | Enzyme Codes |
| HB | HIBCC |
| HCPCS | HCFA Common Procedure Coding System |
| HHC | Home Health Care |
| HL7nnnn | HL7 Defined Codes where nnnn is the HL7 table number |
| HPC | HCFA Procedure Codes (HCPCS) |
| I10 | ICD-10 |
| I10P | ICD-10 Procedure Codes |
| I9 | ICD9 |
| I9C | ICD-9CM |
| ISOnnnn | ISO Defined Codes where nnnn is the ISO table number |
| LB | Local billing code |
| LN | Logical Observation Identifier Names and Codes (LOINC®) |
| MCD | Medicaid |
| MCR | Medicare |
| MEDR | Medical Dictionary for Drug Regulatory Affairs (MEDDRA) |
| MX | CDC Vaccine Manufacturer Codes |
| NDC | National drug codes |
| NPI | National Provider Identifier |
| SNM | Systemized Nomenclature of Medicine (SNOMED®) |
| SNM3 | SNOMED International |
| SNT | SNOMED topology codes (anatomic sites) |

| Value | Description |
|-------|---------------------------------------|
| UML | Unified Medical Language |
| UPC | Universal Product Code |
| UPIN | UPIN |
| W1 | WHO record # drug codes (6 digit) |
| W2 | WHO record # drug codes (8 digit) |
| W4 | WHO record # code with ASTM extension |
| WC | WHO ATC |

HL7-defined Table 4000 - Name/address representation (use in all XPN, XAD data types) (PID-5,6,9,11)

| Value | Description |
|-------|--|
| I | Ideographic (e.g., Kanji) |
| A | Alphabetic (e.g., Default or some single-byte) |
| P | Phonetic (e.g., ASCII, Katakana, Hirigana, etc.) |

NIP-defined NIP001 - Immunization information source (use in RXA-9)

| Value | Description |
|-------|--|
| 00 | new immunization record |
| 01 | historical information - source unspecified |
| 02 | historical information - from other provider |
| 03 | <i>historical information - from parent's written record</i> |
| 04 | <i>historical information - from parent's recall</i> |
| 05 | <i>historical information - from other registry</i> |
| 06 | <i>historical information - from birth certificate</i> |
| 07 | <i>historical information - from school record</i> |
| 08 | <i>historical information - from public agency</i> |

NIP-defined NIP002 - Substance refusal reason (use in RXA-18)

| Value | Description |
|-------|---|
| 00 | <i>Parental decision</i> |
| 01 | <i>Religious exemption</i> |
| 02 | <i>Other (must add text component of the CE field with description)</i> |

NIP-defined NIP003 - Observation identifiers (use in OBX-3)

| LOINC® Code | Description | Corresponding data type (indicate in OBX-2) | Corresponding observation value code table to use (value in OBX-5) |
|---|---|---|--|
| Dose Number for Combination Vaccines - Use in OBX-3 to indicate that OBX-5 value will be the dose number for a component of a combination vaccine. Used when dose numbers are different for the component antigens. | | | |
| 60000-7 | DTaP/DTP dose count in combination vaccine | (NM) | |
| 60001-5 | Hepatitis B dose count in combination vaccine | (NM) | |
| 60002-3 | Haemophilus influenzae type B (Hib) dose count in combination vaccine | (NM) | |
| 60003-1 | Measles dose count in combination vaccine | (NM) | |
| 60004-9 | MMR dose count in combination vaccine | (NM) | |
| 60005-6 | Mumps dose count in combination vaccine | (NM) | |
| 60006-4 | Rubella dose count in combination vaccine | (NM) | |
| 60007-2 | Varicella dose count in combination vaccine | (NM) | |
| Contraindications, Precautions, and Immunities | | | |
| 60010-6 | Vaccination contraindication/precaution effective date | (DT) | |
| 60008-0 | Vaccination temporary contraindication/precaution expiration date | (DT) | |
| 60009-8 | Vaccination contraindication/precaution | (CE) | NIP-defined Table NIP004 |
| Vaccine Adverse Events Reporting (VAERS) - For additional information about VAERS, including a copy of the VAERS Form, see < www.cdc.gov/nip/vaers.htm > or < www.fda.gov/cber/vaers/vaers.htm >. | | | |
| 60011-4 | Vaccination adverse event (VAERS Form Item #7 - Description of adverse events(s) (symptoms, signs, time course and treatment, if any) | (ST) | |
| 60012-2 | Vaccination adverse event outcome (VAERS Form Item #8) | (CE) | NIP-defined Table NIP005 |
| 60013-0 | Number of days hospitalized due to vaccination adverse event (VAERS Form Item #8) | (NM) | |
| 60014-8 | Vaccination adverse event onset date and time (VAERS Form Item #11) | (TS) | |
| Vaccine Information Statement (VIS) Dates | | | |
| 29768-9 | 6.1.1.1.1 Date Vaccine Information Statement Published | (TS) | |
| 29769-7 | 6.1.1.1.2 Date Vaccine Information Statement Presented | (TS) | |
| Other Patient Demographics | | | |
| 21612-7 | Reported Patient Age | (NM) | |
| 21611-9 | Estimated Patient Age | (NM) | |
| 11294-6 | Current Employment | (TX) | |

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NIP-defined NIP004 - Contraindications, Precautions, and Immunities [explanations are from 1998 *Guide to Contraindications to Childhood Vaccinations*] (use in OBX-5 when OBX-3 is valued as LOINC® code 60009-8, Vaccination contraindication/precaution)

| Value | Description | Explanation |
|-------|-------------|-------------|
|-------|-------------|-------------|

| Value | Description | Explanation |
|-------|---|---|
| 01 | <i>Recipient condition - unspecified</i> | |
| 02 | <i>household condition - unspecified</i> | |
| 03 | <i>allergy to baker's yeast (anaphylactic)</i> | <i>contraindicates HBV</i> |
| 04 | <i>allergy to egg ingestion (anaphylactic)</i> | |
| 05 | <i>allergy to gelatin (anaphylactic)</i> | <i>extreme caution for MMR & VZV</i> |
| 06 | <i>allergy to neomycin (anaphylactic)</i> | <i>contraindicates IPV, MMR & VZV</i> |
| 07 | <i>allergy to streptomycin (anaphylactic)</i> | <i>contraindicates IPV</i> |
| 08 | <i>allergy to thimerosal (anaphylactic)</i> | |
| 09 | <i>allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)</i> | |
| 10 | <i>anaphylactic (life-threatening) reaction to previous dose of this vaccine</i> | <i>contraindicates that vaccine</i> |
| 11 | <i>collapse or shock like state within 48 hours of previous dose of DTP/DTaP</i> | <i>precaution for DTP/DTaP</i> |
| 12 | <i>convulsions (fits, seizures) within 3 days of previous dose of DTP/DTaP</i> | <i>precaution for DTP/DTaP</i> |
| 13 | <i>persistent, inconsolable crying lasting ≥3 hours within 48 hours of previous dose of DTP/DTaP</i> | <i>precaution for DTP/DTaP</i> |
| 14 | <i>current diarrhea, moderate to severe</i> | <i>contraindicates vaccination temporarily (until illness resolves)</i> |
| 15 | <i>encephalopathy within 7 days of previous dose of DTP</i> | <i>contraindicates DTP/DTaP permanently</i> |
| 16 | <i>current fever with moderate-to-severe illness</i> | <i>contraindicates vaccination temporarily (until illness resolves)</i> |
| 17 | <i>fever of ≥40.5°C (105°F) within 48 hours of previous dose of DTP/DTaP</i> | <i>precaution for DTP/DTaP</i> |
| 18 | <i>Guillain-Barré syndrome (GBS) within 6 weeks of previous dose of DTP/DTaP</i> | <i>precaution for DTP/DTaP</i> |
| 19 | <i>HIV infection (in household contact)</i> | <i>contraindicates OPV</i> |
| 20 | <i>HIV infection (in recipient)</i> | <i>contraindicates OPV & VZV</i> |
| 21 | <i>current acute illness, moderate to severe (with or without fever) (e.g., diarrhea, otitis media, vomiting)</i> | <i>contraindicates vaccination temporarily (until illness resolves)</i> |
| 22 | <i>chronic illness (e.g., chronic gastrointestinal disease)</i> | <i>decide to vaccinate on an individual basis</i> |
| 23 | <i>immune globulin (IG) administration, recent or simultaneous</i> | <i>precaution for MMR & VZV</i> |
| 24 | <i>immunity: diphtheria</i> | |
| 25 | <i>immunity: Haemophilus influenzae type B (Hib)</i> | |
| 26 | <i>immunity: hepatitis B</i> | |
| 27 | <i>immunity: measles</i> | |
| 28 | <i>immunity: mumps</i> | |
| 29 | <i>immunity: pertussis</i> | |
| 30 | <i>immunity: poliovirus</i> | |
| 31 | <i>immunity: rubella</i> | |
| 32 | <i>immunity: tetanus</i> | |
| 33 | <i>immunity: varicella (chicken pox)</i> | |
| 34 | <i>immunodeficiency (family history)</i> | <i>contraindicates OPV & VZV unless immune status of recipient and other children in the family is documented</i> |
| 35 | <i>immunodeficiency (household contact)</i> | <i>contraindicates OPV</i> |
| 36 | <i>immunodeficiency (hematologic and solid tumors, congenital immunodeficiency, long-term</i> | <i>contraindicates OPV, MMR & VZV</i> |

| Value | Description | Explanation |
|-------|---|---|
| | <i>immunosuppressive therapy, including steroids) (in recipient)</i> | |
| 37 | <i>neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)</i> | <i>precaution for DTP/DTaP</i> |
| 38 | <i>otitis media (ear infection) moderate to severe (with or without fever)</i> | <i>contraindicates vaccination temporarily (until illness resolves)</i> |
| 39 | <i>pregnancy (in recipient)</i> | |
| 40 | <i>thrombocytopenia</i> | <i>precaution for MMR</i> |
| 41 | <i>thrombocytopenic purpura (history)</i> | <i>precaution for MMR</i> |
| 42 | <i>other contraindication/precaution/immunity not listed (must add text component of the CE field with description)</i> | |
| 43 | <i>unknown (valid only for historical immunizations)</i> | |

NIP-defined NIP005 - Event consequence [adapted from HL7-defined Table 0240] (use in OBX-5 when OBX-3 is valued as 60012-2 - Vaccination adverse event outcome)

| Value | Description |
|----------|---|
| <i>D</i> | <i>Patient died</i> |
| <i>L</i> | <i>Life threatening illness</i> |
| <i>E</i> | <i>Required emergency room/doctor visit</i> |
| <i>H</i> | <i>Required hospitalization (indicate # of days in another OBX segment)</i> |
| <i>P</i> | <i>Resulted in prolongation of hospitalization</i> |
| <i>J</i> | <i>Resulted in permanent disability</i> |
| <i>O</i> | <i>None of the above</i> |

User-defined Table 0441 Immunization registry status (Similar to previous Table NIP006 - Patient registry status) (use in PD1-14) [HL7 assigned table number 0441 in Version 2.3.1]

| Value | Description |
|----------|---|
| <i>A</i> | <i>Active</i> |
| <i>I</i> | <i>Inactive</i> |
| <i>L</i> | <i>Inactive-Lost to follow-up (cannot contact)</i> |
| <i>M</i> | <i>Inactive-Moved or gone elsewhere (transferred)</i> |
| <i>P</i> | <i>Inactive-Permanently inactive (do not re-activate or add new entries to this record)</i> |
| <i>O</i> | <i>Other</i> |
| <i>U</i> | <i>Unknown</i> |

7 APPENDIX C: Data Types used in this Implementation

| HL7 Ref# | Data Type | Description | Notes |
|----------|--|--|---|
| 2.8.3 | CE - coded element with formatted values | <p>This data type transmits codes and the text associated with the code. To allow all six components of a CE data type to be valued, the suggested length of a field of this data type is at least 60.</p> <p>Components: <identifier (ST)>^<text (ST)>^<name of coding system (ST)>^<alternate identifier (ST)>^<alternate text (ST)> ^<name of alternate coding system (ST)> Components are defined as follows: (1) Identifier (ST). The code that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here. (2) Text (ST). Name or description of the item in question. Name of coding system (ST). Identifies the coding system used. The combination of the identifier and the name of the coding system components will be a unique code for a data item. (4-6) Three components analogous to 1-3 for the alternate or local coding system.</p> | <p>For HL7-defined tables, the third component, name of coding system, is constructed by appending the table number to the string "HL7." For example, the HL7 table number 0163 would be designated in the "name of coding system" component as "HL70163."</p> <p>The second set of codes must carry the same meaning as the first set. For example, for immunization data, a first set using CVX codes followed by a second set using CPT codes may be used to record the administration of a single vaccine.</p> <p>The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.</p> |
| 2.8.5 | CK - composite ID with check digit | <p>Components: <ID number (NM)>^<check digit (NM)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)> Components are defined as follows: (1) ID number (NM). (2) Check digit (NM). This is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null. (3) Code identifying the check digit scheme employed (ID). Check digit scheme codes are defined in <i>HL7 Table 0061 - Check digit scheme</i>. Note: Mod 10 and Mod 11 check digit algorithms are defined in the HL7 Standard Section 2.8.5.3.</p> | <p>This data type is used for certain fields that commonly contain check digits, e.g., <i>PID-3-Patient identifier list</i>. If a user is not using check digits for a CK field, the second and third components are not valued.</p> |
| 2.8.7 | CN - Composite ID number and name | <p>Components: <ID number (ST)> ^ <family name (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (ST)> ^ <source table (IS)> ^ <assigning authority (HD)></p> | |
| 2.8.6 | CM - composite | <p>A field that is a combination of other meaningful data fields. Each portion is called a component. The specific components of CM fields are defined within the field descriptions.</p> | <p>The CM data type is maintained strictly for backward compatibility and may not be used for the definition of new fields.</p> |
| 2.8.9 | CP - composite price | <p>Components: <price (MO)>^<price type (ID)>^<from value (NM)>^<to value (NM)>^<range units (CE)>^<range type (ID)></p> | <p>See HL7 Standard for component definitions.</p> |
| 2.8.10 | CQ - composite quantity with units | <p>Components: <quantity (NM)>^<units (CE)></p> | <p>Future use of this data type will be avoided because the same information can be sent as a CE data type.</p> |

| HL7 Ref# | Data Type | Description | Notes |
|----------|---|--|--|
| 2.8.12 | CX - extended composite ID with check digit | <p>Components: <ID (ST)>^<check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility (HD)></p> <p>Components are defined as follows:</p> <ol style="list-style-type: none"> (1) ID (ST). (2) Check digit (ST). Defined as in the CK data type except as a The check digit used in this data type is not an add-on produced by the message processor. It is the check digit that is part of the identifying number used in the sending application. If the sending application does not include a self-generated check digit in the identifying number, this component should be valued null. (3) Code identifying the check digit scheme employed (ID). (4) Assigning authority (HD). Subcomponents of (4): <application identifier 1 (ID)> & <application identifier 2 (ID)> & <application identifier 3 (ID)> & <application identifier 4 (ID)> & <application identifier 5 (ID)> & <application identifier 6 (ID)> (5) Identifier type code (IS). A code corresponding to the type of identifier. This code may be used as a qualifier to the "Assigning authority" component. Refer to <i>User-defined Table 0203 - Identifier type</i> for suggested values. (6) Assigning facility (HD). The place or location identifier where the identifier was first assigned to the patient part of the history of the identifier. Subcomponents of (6): <namespace ID (IS)>&<universal ID (ST)>&<universal ID type (ID)> | Refer to <i>User-defined Table 0203 - Identifier type</i> for suggested values for component 5. |
| 2.8.13 | DLN - driver's license number | Components: <license number (ST)>^<issuing state, province, country (IS)>^<expiration date (DT)> | This data type gives the driver's license information. See HL7 Standard for component definitions and tables to use. |
| 2.8.15 | DT - date | Format: YYYY[MM[DD]] | The precision of a date may be expressed by limiting the number of digits used with the format specification YYYY[MM[DD]]. |
| 2.8.17 | EI - entity identifier | <p>Components: <entity identifier (ST)>^<namespace ID (IS)>^<universal ID (ST)>^<universal ID type (ID)></p> <p>Components are defined as follows:</p> <ol style="list-style-type: none"> (1) Entity identifier (ST). This component is usually defined to be unique within the series of identifiers created by the assigning authority, defined by a hierarchic designator, represented by components (2) through (4). (These are as defined here at 2.8.20, "HD - hierarchic designator.") | The entity identifier defines a given entity within a specified series of identifiers. |
| 2.8.18 | FC - financial class | <p>Components: <financial class (IS)>^<effective date (TS)></p> <p>Components are defined as follows:</p> <ol style="list-style-type: none"> (1) Financial class (IS). The financial class assigned to a person. Refer to <i>User-defined Table 0064 - Financial class</i> for suggested values. (2) Effective date (TS). The effective date/time of the person's assignment to the financial class specified in the first component. | Used in immunization registries to classify VFC eligibility. |
| 2.8.19 | FT - formatted text data | This data type is derived from the string data type by allowing the addition of embedded formatting instructions. These instructions are limited to those that are intrinsic and independent of the circumstances under which the field is being used. The FT field is of arbitrary length (up to 64K) and may contain formatting commands enclosed in escape characters. | |
| 2.8.20 | HD - hierarchic | A unique name that identifies the system which was the source of the data. The HD is designed to be used either as a local version of a site- | Used in fields that formerly used the IS data type. When |

| HL7 Ref# | Data Type | Description | Notes |
|----------|--|---|--|
| | designator | <p>defined application identifier or a publicly-assigned UID. Syntactically, the HD is a group of two application identifiers: one defined by the first component, and one defined by the second and third components.</p> <p>Components: <namespace ID (IS)>^<universal ID (ST)>^<universal ID type (ID)></p> <p>Components are defined as follows:</p> <ol style="list-style-type: none"> (1) Namespace ID (IS). Refer to <i>User-defined Table 0300 - Namespace ID</i> for suggested values. (2) Universal ID (ST). The UID is a string formatted according to the scheme defined by the third component, UID type. The UID is intended to be unique over time within the UID type. It is rigorously defined by the scheme constructing it. The UID must follow the syntactic rules of the particular scheme defined in the third component. (3) Universal ID type (ID). Governs the interpretation of the second component of the HD. If it is a known UID, refer to <i>HL7 Table 0301 - Universal ID type</i> for valid values. | <p>only the first HD component is valued, it looks like a simple IS data type.</p> <p>Designed to be an application identifier, either as a local version of a site-defined application identifier or a publicly-assigned universal ID (UID). The HD is a group of two application identifiers: one defined by the first component, and one defined by the second and third components.</p> <p>If the first component is present, the second and third components are optional. The second and third components must either both be valued (both non-null), or both be not valued (both null).</p> |
| 2.8.21 | ID - coded value for HL7-defined tables | The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. Examples of ID fields include <i>MSH-12-Version ID</i> and <i>PD1-12-Protection indicator</i> . | This data type should be used only for HL7 tables. The reverse is not true, since in some circumstances, it is more appropriate to use the CE data type for HL7 tables. |
| 2.8.22 | IS - coded value for user-defined tables | The value of such a field follows the formatting rules for an ST field except that it is drawn from a site-defined (or user-defined) table of legal values. An example of an IS field is <i>PID-8-Sex</i> . | This data type should be used only for user-defined tables. The reverse is not true, since in some circumstances, it is more appropriate to use the CE data type for user-defined tables. |
| 2.8.23 | JCC - job code/class | Format: <job code (IS)>^<job class (IS)> | See HL7 Standard for component definitions and tables to use. |
| 2.8.25 | MO - money | Components: <quantity (NM)>^<denomination (ID)> | See HL7 Standard for component definitions and tables to use. |
| 2.8.26 | NM - numeric | A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point, the number is assumed to be an integer. Leading zeros, or trailing zeros after a decimal point, are not significant. | |
| 2.8.28 | PL - person location | Components: <point of care (IS)>^<room (IS)>^<bed (IS)>^<facility (HD)>^<location status (IS)>^<person location type (IS)>^<building (IS)>^<floor (IS)>^<location description (ST)> | Used to specify a patient location within a healthcare institution. See HL7 Standard for component definitions and tables to use. |
| 2.8.30 | PN - person name | <p>Components: <family name (ST)>^<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)></p> <p>Components are defined as follows:</p> <ol style="list-style-type: none"> (1) Family name (ST) & Last name prefix (ST). Surname/last name. Last name prefix is for use with Germanic languages (e.g., van | Note: To "translate" the last name prefix and the family name, prepend the last name prefix to the family name component. If the last name prefix is not null, the last |

| HL7 Ref# | Data Type | Description | Notes |
|----------|-------------------------|---|--|
| | | <p>in Ludwig van Beethoven).</p> <p>(2) Given name (ST).</p> <p>(3) Middle initial or name (ST).</p> <p>(4) Suffix (ST). Used to specify a name suffix (e.g., Jr. or III).</p> <p>(5) Prefix (ST). Used to specify a name prefix (e.g., Dr.).</p> <p>(6) Degree (IS). Used to specify an educational degree (e.g., MD). See <i>User-defined Table 0360 - Degree</i> for values.</p> | name prefix should not also be present as part of the family name component. |
| 2.8.31 | PT - processing type | <p>Components: <processing ID (ID)>^<processing mode (ID)></p> <p>Components are defined as follows:</p> <p>(1) Processing ID (ID). A value that defines whether the message is part of a production, training, or debugging system. Refer to <i>HL7 Table 0103 - Processing ID</i> for valid values.</p> <p>(2) Processing mode (ID). A value that defines whether the message is part of an archival process or an initial load. Refer to <i>HL7 Table 0207 - Processing mode</i> for valid values. The default (blank) means current processing.</p> | |
| 2.8.38 | SI - sequence ID | A non-negative integer in the form of an NM field. | The uses of this data type are defined in the chapters defining the segments and messages in which it is used. |
| 2.8.39 | SN - Structured numeric | <comparator (ST)> ^ <num1 (NM)> ^ <separator/suffix (ST)> ^ <num2 (NM)> | |
| 2.8.40 | ST - string data | Any printable ASCII characters except the defined delimiter characters. To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence. String data is left justified with trailing blanks optional. | The ST data type is intended for short strings (less than 200 characters). For longer strings, the TX or FT data types should be used. |
| 2.8.41 | TM - time | <p>Format: HH[MM[SS[.S[S[S[S]]]]]][/+ZZZZ]</p> <p>Precision of a time is expressed by limiting the number of digits used within the format, using a 24-hour clock notation. Thus, HH is used to specify precision only to hour.</p> | The time is understood to refer to the local time of the sender. |
| 2.8.42 | TN - telephone number | Format: [NN] [(999)]999-9999[X99999][B99999][C any text] | The optional first two digits are the country code. The optional X portion gives an extension. The optional B portion gives a beeper code. The optional C portion may be used for comments such as, "After 6:00 pm." |
| 2.8.43 | TQ - timing quantity | Components: <quantity (CQ)>^<interval (CM)>^<duration (ST)>^<start date/time (TS)>^<end date/time (TS)>^<priority (ST)>^<condition (ST)>^<text (TX)>^<conjunction (ST)>^<order sequencing (CM)>^<performance duration (CE)>^<total occurrences (NM)> | Describes when a service should be performed and how frequently. Complete description is in HL7 Standard Section 4.4. |
| 2.8.44 | TS - time stamp | <p>Contains the exact time of an event, including the date and time.</p> <p>Format: YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][/+ZZZZ]^ <degree of precision></p> <p>The date portion of a time stamp follows the rules of a date field (DT) and the time portion follows the rules of a time field (TM). HL7 recommends, but does not require, that all systems routinely send the time zone offset.</p> | The optional degree of precision component is retained only for backwards compatibility. Immunization registries will not value this component. Instead, the precision of the data may be indicated by limiting the number of digits valued. |
| 2.8.45 | TX - text data | String data meant for user display (on a terminal or printer). Not necessarily left justified. Leading spaces may contribute to clarity of the presentation to the user. | |
| 2.8.47 | VID - | Components: <version ID (ID)>^<internationalization code | |

| HL7 Ref# | Data Type | Description | Notes |
|----------|---|---|---|
| | version identifier | <p>(CE)>^<international version ID (CE)> Components are defined as follows:</p> <ol style="list-style-type: none"> (1) Version ID (ID). Used to identify the HL7 version. Refer to <i>HL7 Table 0104 - Version ID</i> for valid values. (2) Internationalization code (CE). Used to identify the international affiliate country code. ISO 3166 provides a list of country codes that may be used (see <i>User-defined Table 0212 - Nationality</i>). (3) International version ID (CE). Used when the international affiliate has more than a single local version associated with a single U.S. version. | |
| 2.8.48 | XAD - extended address | <p>Components: <street address (ST)>^<other designation (ST)>^<city (ST)>^<state or province (ST)>^<zip or postal code (ST)>^<country (ID)>^<address type (ID)>^<other geographic designation (ST)>^<county/parish code (IS)>^<census tract (IS)>^<address representation code (ID)> Components are defined as follows:</p> <ol style="list-style-type: none"> (1) Street address (ST). The street or mailing address of a person or institution. (2) Other designation (ST). Second line of address (e.g., Suite 555, or Fourth Floor). (3) City (ST). (4) State or province (ST). State or province should be represented by the official postal service codes for that country. (5) Zip or postal code (ST). Zip or postal codes should be represented by the official codes for that country. In the U.S., the zip code takes the form 99999[99999], while the Canadian postal codes take the form A9A-9A9. (6) Country (ID). Defines the country of the address. ISO 3166 provides a list of country codes that may be used (see <i>User-defined Table 0212 - Nationality</i>). (7) Address type (ID). Type is optional and defined by <i>HL7 Table 0190 - Address type</i>. (8) Other geographic designation (ST). Other geographic designation includes county, bioregion, SMSA, etc. (9) County/Parish Code (IS). This component should not duplicate component 8. Refer to <i>User-defined Table 0289 - County/Parish</i> for values. (10) Census Tract (IS). Refer to <i>User-defined Table 0288 - Census tract</i> for values. (11) Address representation code (ID). See <i>HL7 Table 4000 - Name/address representation</i>. | <p><i>HL7 Table 0190 - Address type</i> allows user to designate the type of address (e.g., mailing, residence at birth, birth delivery location). When this field is allowed to repeat, several addresses can be recorded in the field, with each type noted.</p> |
| 2.8.49 | XCN - extended composite ID number and name for persons | <p>Components: <ID number (ST)>^<family name (ST)>^<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<source table (IS)>^<assigning authority (HD)>^<name type code (ID)>^<identifier check digit (ST)>^<code identifying the check digit scheme employed (ID)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)> Components are defined as follows:</p> <ol style="list-style-type: none"> (1) ID number. This string refers to the coded ID according to a user-defined table. If the first component is present, either the source table or the assigning authority must be valued. (2-7) These components are defined as in the PN data type(1-6). (8) Source table (IS). Refer to <i>user-defined table 0297 - CN ID source</i> for suggested values. Used to delineate the first component. (9) Assigning authority (HD). Subcomponents of (9): <namespace ID (IS)>^<universal ID (ST)> & <universal ID type (ID)> (10) Name type code (ID). Refer to <i>User-defined Table 0200 - Name type</i> for valid values. (11) Identifier check digit (ST). (12) Code identifying the check digit scheme employed (ID). (13) Identifier type code (IS). Refer to <i>user-defined table 0203 - Identifier type</i> for valid values. (14) Assigning facility (HD). | See PN (1-6) for component definitions (2-7). |

| HL7 Ref# | Data Type | Description | Notes |
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| | | Subcomponents of (14): <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)> 15) Name representation code (ID). See <i>HL7 Table 4000 - Name/address representation</i> for valid values. | |
| 2.8.50 | XON - extended composite name and identification number for organizations | Components: <organization name (ST)>^<organization name type code (IS)>^<ID number (NM)>^<check digit (NM)>^<code identifying the check digit scheme employed (ID)>^<assigning authority (HD)>^<identifier type code (IS)>^<assigning facility ID (HD)>^<name representation code (ID)> Components are defined as follows: (1) Organization name (ST). The name of the specified organization. (2) Organization name type code (IS). Refer to <i>User-defined Table 0204 - Organizational name type</i> . (3-5) Defined as in CK (1-3). (6) Assigning authority (HD). Subcomponents of (9): <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)> (7) Identifier type code (IS). Refer to <i>user-defined table 0203 - Identifier type</i> for valid values. (8) Assigning facility (HD). Subcomponents of (8): <namespace ID (IS)>&<universal ID (ST)> & <universal ID type (ID)> (9) Name representation code (ID). See <i>HL7 Table 4000 - Name/address representation</i> for valid values. | See CK (1-3) for XON components (3-5). |
| 2.8.51 | XPN - extended person name | Components: <family name (ST)>&<last name prefix (ST)>^<given name (ST)>^<middle initial or name (ST)>^<suffix (e.g., Jr. or III) (ST)>^<prefix (e.g., Dr.) (ST)>^<degree (e.g., MD) (IS)>^<name type code (ID)>^<name representation code (ID)> Components are defined as follows: (1-6) These components are defined as in the PN data type. (7) Name type code (ID). Refer to <i>HL7 Table 0200 - Name type</i> for valid values. (8) Name representation code (ID). Refer to <i>HL7 Table 4000 - Name/address representation</i> for valid values. | |
| 2.8.52 | XTN - extended telecommunication number | Format and Components: [NNN] [(999)]999-9999[X99999][B99999][C any text]^<telecommunication use code (ID)>^<telecommunication equipment type (ID)>^<email address (ST)>^<country code (NM)>^<area/city code (NM)>^<phone number (NM)>^<extension (NM)>^<any text (ST)> For codes, refer to <i>HL7 Table 0201 - Telecommunication use code</i> and <i>HL7 Table 0202 - Telecommunication equipment type</i> . | Note: To interoperate with CEN's Telecommunication data attribute group, HL7 allows use of the second component for email addresses. When used for an Internet address, the first component will be null; the second component will have the code NET, and the type of Internet address is specified with Internet or X.400 in the third component. When used for an Internet address, the first component of the XTN data type will be null. If the @-sign is being used as a subcomponent delimiter, the HL7 subcomponent escape sequence may be used (See Section 2.9 of the HL7 Standard). |